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HABIT AND ITS IMPORTANCE IN EDUCATION

An Essay

IN

PEDAGOGICAL PSYCHOLOGY

*TRANSLATED FROM THE GERMAN OF
DR. PAUL RADESTOCK*

BY

F. A. CASPARI

WITH AN INTRODUCTION

BY

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INTRODUCTION.

DR. PAUL RADESTOCK, the author of this work, already favorably known by several other psychological monographs, has, in scarcely less degree than Ribot in France or Sully in England, the happy faculty of absorbing the literature of a large scientific field and re-stating it in lucid, untechnical, and condensed form. He has read widely in anthropology and morbid and experimental psychology, and in this work, which is here translated entire, he has rendered his chief service to education.

He assumes that, so far as education becomes a science, or teaching a profession, it will rest more entirely upon psychology. Education he regards as progressive habituation, and good habits as even more important than good principles. What makes the novice a master is the power of the brain to lay up earlier stimuli in the form of dispositions. Habit not only lays down the trunk lines of association, and thus gives direction, but it furnishes momentum of mind and will. We have truly learned, not what we can be examined on, but what has become second nature or habit. Memory must lapse to custom, and sometimes to fixed reflex action or "will-memory," before the assimilation of instruction is complete. The stages in this process, from the residual trace left by the first act, which is the

germ or point of departure for habitude, the excitation by "organic phosphorescence" or memory of all that favors, and the suppression of all colliding or diverting acts or impressions, the fusing of similars widely scattered in time and space in the sharpest possible focus of attention, till the raw material of memory is summated and gradually digested into faculty, and at-oned in instinct and intuition,—this is the story of these pages. If we assume with Aristotle that the process of habituation may be extremely accelerated by right methods, or retarded by wrong ones, or with this author that more men are made not only bad but ignorant by education or habit than by nature, the practical bearings of a work like this will not be underestimated.

Habit steadies and gives strength. Harmonious ideas are reënforced and discordant ones fade out. Character is slowly defined; tact and taste take the place of memory and labored consciousness, as we turn over to our automaton what expression had to do before. This residuum and deposit of schools and books, and even of experience, is the measure and standard of all educational values, and is even physically transmissible to succeeding generations.

Radestock does not overlook the fact that extreme habituation is fraught with dangers. It may diminish the many-sidedness of our interests, and even make the new incomprehensible or intolerable to us. It may so conventionalize us as to weaken the will and enervate the feelings. This is the danger Rousseau feared in urging that a child must be accustomed to nothing, not even to the predominant use of the right hand, or to eating and sleeping at the same place or time, etc., lest the

sphere of liberty should be interfered with. A sudden change of environment and habits has often proved a great stimulus to consciousness, and genius often manifests what I have elsewhere designated as *nomophobia*, or hatred of the usual, or a passion for the unwonted. This is no doubt often favorable to the rapid new combinations of thought that characterize genius. It is, however, exceptional and no doubt often morbid, and, as our author well observes, even genius must be habituated by education, and needs teachers who are not geniuses.

Dr. Radestock is well read in the newer English psychological literature, and this makes his thought still more lucid to us. The translator and the publisher of this little book merit the thanks of those American teachers who are interested in the psychological basis of their vocation.

G. STANLEY HALL.

BALTIMORE, March 9, 1886.



HABIT IN EDUCATION.

HABIT

AND

ITS IMPORTANCE IN EDUCATION.



CHAPTER I.

VALUE AND LIMITS OF EDUCATION.

FORCE AND VALUE OF HABIT. — VARIOUS DEFINITIONS OF HABIT.

THE greatest variety of opinions has been advanced, with regard to the value and limits of education. Some claim that it can do everything, while others believe that it can do nothing, and that the difference in the mental capacity of men rests only on the endowments conferred upon them by nature.

The true mean between these two extremes is perhaps best expressed in Lessing's "Education of Mankind": "Education gives man nothing which he could not have developed from within himself. It gives him that which he might have developed from within himself more quickly and easily."

"Education can only develop and form, not create. It cannot undertake to form a being into anything other than it was destined to be by the endowments it originally received at the hand of nature."

"Education can only develop and unfold; it cannot create anything new." — *K. Rosenkranz.*

Henry Maudsley writes : " It is self-evident that education is restricted within certain limits ; caused on the one hand by the species, on the other by individual organization. But man can only, in the former case, determine what is predetermined in the organization of the nervous system and of the bodily machinery in connection with it ; can only in the latter case make actual the potentialities of the individual nature, and not every youthful citizen can be trained to become a Socrates or Shakespeare."

Of false education, it is true, we can still say what Resewitz remarked a century since, " More people are spoilt by a false education than ever inherited their corruption as a sad endowment from nature."

With regard to the different degrees of ability to be taught and educated, evinced by various pupils, Amos Comenius says, in substance : " Some pupils are sharp, others dull ; some soft and yielding, others hard and obstinate ; some are naturally studious, while others take more pleasure in manual labor ; whence we may speak of six different dispositions. 1. There are children who are ingenious, anxious to learn, tractable, and therefore suited above all for students ; these require only an offer of food for wisdom ; they grow like rare plants. Care, in fact, is needed to prevent any over-exertion on their part, which is but too often followed by weariness and disgust. 2. Others are penetrating and slow, but withal tractable ; these need only to be spurred on. 3. There are children who are penetrating and studious, but stubborn and obstinate ; they are generally hated in schools, and one is inclined to give them up ; yet these generally grow to be the greatest men if they are correctly trained. 4. There are obedient and studious children who are, however, slow and difficult of comprehension. These must follow in the tracks of the former ; and that this may be possible, we must stoop to their level, we must not place too heavy burdens upon them, nor judge them harshly, but must bear with them willingly, raise them, encourage them, cheer them, that

they may take heart. They may reach the goal later, but will endure longer, as late fruits generally do. 5. Some are dull, troublesome, and lazy. These can also be improved, but there must be no obstinacy, and much skill and patience are required. 6. There are dull ones who are by nature ill-willed, wrong-headed, and generally spoiled. Even here we should not lose hope at first. If it is, however, impossible to improve them, they should be left alone."

Flattich thinks that the human mind differs in quality, like the soil found in farming. 1. There is soil good on the surface and bad below; 2. that bad on the surface and good below; 3. that good both on the surface and below; 4. that bad both on the surface and deep down in the ground. Minds like the first kind of soil learn well at first and then badly; these are fitted for a knowledge of languages, history, and geography; those of the second kind are suited for deep and heavy thinking, because they learn badly at first, and improve after a while; those of the third class are fit for anything; those of the fourth, for nothing.

K. Von Raumer says: "Some pupils were intelligent, quick, and vigorous of comprehension, decisive and confident in answering; others were more deliberate, musing, and reflective, comprehending more slowly and answering with some hesitation. Some had a comparatively equal liking for all studies, while others had a distinct predilection for certain subjects."

Education cannot create anything new; it can only develop and unfold the already existing faculties of the human mind; but in this developing and unfolding lies its greatest value. To those who think little of it—perhaps because egotism leads them to ascribe to their own powers what is really the result of the good influence of others, while they make education and the effect of evil circumstances responsible for all their evil traits—experience will plainly show what great difference there is between a man who, endowed by nature with happy faculties,

has also enjoyed the benefit of a good education, and one who, through want of sufficient education, has not been able to develop his faculties and employ them for the welfare of mankind. It is true that now and then an eminent talent will succeed, by ceaseless energy in conquering all obstacles, and will gain by its own strength the height to which others did not assist it in mounting; but then it only reaches the goal with far greater struggles and after much longer time than if its aspirations had been aided from earliest youth by a careful education. For this it is that awakens the slumbering powers, incites them to a more rapid development, and finally brings them to full fruition. It gives man "what he could develop from within himself more quickly and more easily."

This great end, however, is best reached by the aid of one of Education's trusty servants,—the formation of habit, which changes functions, of whatever kind, originally performed but slowly and with effort, into rapid and skilful actions, performed with dexterity and ease; it makes study easier, and finally builds the bridge uniting theory with practice by changing dead knowledge into a living power. Mankind is well aware of the power of practice and habit, as is shown by numerous proverbs. In literature, finally, we shall find the importance of the formation of habits insisted upon, not alone by ancient and modern pedagogues, but by most other learned men and sages.

I. Locke says: "As the years advance, they bring greater freedom from restraint, and the boy must often be left to his own guidance, because no mentor can be ever at his side except the one created in his own mind by sound principles and steady habits. It is true this is the best and safest one, and therefore worthy of the highest consideration; for we must expect nothing from precautionary maxims and good precepts, though they be deeply impressed on the mind, beyond the point at which practice has changed them to firm habits." Children are not to be taught by maxims, which continually slip from their memory.

Whatever we believe they must imperatively do, we should strengthen them in doing by unwearied practice, whenever the opportunity offers, and, if possible, create opportunities therefor.

Rousseau opposes in his "Émile" the saying, "Nature is nothing but the formation of habits." There are many habits which are contrary to nature; these, however, can exist only so long as the controlling force lasts; this ceasing, they vanish before nature breaking forth with renewed power (*naturam expellas furca tamen usque recurret*); yet he finally arrives at the conclusion, "Education is certainly nothing but a formation of habits."

Even before rules and maxims are recognized, and afterwards simultaneously with these the mind of the child can be turned by force of habit in the direction which its character will afterwards assume.

He who early teaches children to bear what they will have to undergo in afterlife, who lets those rules, which are in future to guide their actions, guide them now, and who finally has them repeat these so often and so long that they no longer err, has accomplished not a little.

Niemeyer thinks that: "The familiarizing of young people, even from their earliest years, with habits of order, cleanliness, decency, and politeness, will not be without lasting effect on their inner life. Children take their first steps towards civilization in these matters. The love for regularity is thus formed. Evil habits are forgotten by disuse. The more rarely evil traits have an opportunity of appearing, the more the causes are removed by which they are excited, the more they will lose in strength, as physical powers relax when not exercised."

"A child is accustomed to an action by giving it the opportunity to practise this one especially, and by removing any opportunities for other actions colliding with it; thirdly, by heightening the pleasure in the action by a union of pleasant impres-

sions with the deed, and on the other hand, making the conflicting habits unpleasant by uniting them with pain. Habit almost invariably goes farther than precept, and the teacher must ascribe most of his successes to the formation of habits. For the power of insight generally covers a single case only, while that of habit reaches through a whole life."—*J. G. Curtman.*

Among those habits which the spirit of the present time renders more difficult of acquisition are those of temperance, plainness, modesty, and unselfishness. Others are made easier by custom, as habits of cleanliness, decency, etc. Curtman particularly marks: 1. The formation of habits of order. The acquisition of regular habits in the use of time is of almost greater importance than a regularity with regard to place; above all else in importance is the restriction of sleep to a certain quantity of time. 2. Habits of attention. 3. Habits of obedience. 4. Breaking up of evil habits.

Deinhardt says of the various methods by which habits are acquired: "(a) From its earliest infancy, the child must be habituated to ways of cleanliness and order. (b) As soon as the will begins to form, the habit of obedience must be inculcated. (c) The correct use of the mother-tongue must be practised until it becomes a habit. In school the habits of attention and industry should be taught, while scientific education leads to habits of thinking and speaking." "Clearness and distinctness, perspicuity and precision, regularity and consistency" in all mental operations are necessary habits in sound thinking. Indeed, scientific education is only worth anything, and of vital importance, when its actions, powers, and means have become firm and steady habits. The formation of habits is, of the utmost importance, not in educating the intelligence alone, but its value with regard to the moral actions is even greater still. He is not honest in the strictest sense of the word who must still be on his guard that he may not cheat his fellow-men, nor covet their goods; but he with whom honesty has become a

favorite habit which rules his inmost sensibilities and aspirations so that no power from without can turn him away from it, is honest indeed.

"Greater strength and ease in the combination and association of ideas, like dexterity and skill in the movement of the muscles, is most easily and surely acquired by repetition. The more manifold and varied these repetitions are, instead of continually going over the same beaten track, the more unrestricted and unconstrained will be the acquired skill; for which reason we cannot enough recommend repetition of what has gone before, from a different point of view, and under other conditions, especially in all mental studies." — *Dr. Eisenlohr*.

Theo. Fechner in his "School of Æsthetics" points to the psychological value of habits and practice: What was objected to at first will often after several repetitions of the impression be endured, yea, received with decided pleasure, and its loss be sadly felt. This is a sort of adaptation of our inner organism to an attraction which is gradually called forth by the effect of the attraction itself. By practice many a one will lose his predilection for what is coarse, and in its stead train a feeling of refinement.

Dr. Kussmaul, in his "Corruption of Languages," speaks of the value of the formation of habits as regards language. Comparative philology offers many instances of the importance of practice and habit. There are entire nations or separate parts of one nation to whom the pronunciation of *r* or *l*, *h* or *ch*, the dental *th*, the diphthongs or any other letter causes great difficulty, although they have not lost the organs used in articulating them. The association of conceptions with ideas, and their union with feelings and aspirations, is as much under the control of education and habit as the co-ordination of the articulatory central stations." Most human actions are acquired by practice. "The aim of all human education is the control of all inborn and acquired reflections by rational and sensible motives."

We also find many proverbs about the force and value of habit. In "Practiced in youth, accomplished in age," there is a distinct incentive to the early formation of habits. "Every drop hollows the stone" and "Practice makes perfect," proclaim that repeated attempts will conquer all obstacles and finally lead to the goal. By habit many things grow to be part of ourselves (in succum et sanguinem) and become second nature. The power of good as well as evil habits is shown in "A hook will early begin to bend," while for unnatural and forced habits the old word still holds good, "*Naturam expellas furca tamen usque recurret.*"

Let us look for a moment at the definitions of the word "habit" given by some pedagogues, and differing only in the degree of their inadequacy. Curtman says: "The formation of habit is the change of an outer or inner action into a propensity. The organic powers grow through practice. Their actions in this way become easier, skill is formed and habit also, in so far as an inclination to repeat the action frequently is connected therewith. The action by the performance of which a habit is created is called habituation." Now it is true, that every labor which is not too great is accompanied by a pleasant feeling; and the accumulation of like feelings in succeeding, which follow the practice of the same occupation, may cause a propensity for that occupation; but, as Campe remarks, the ideas "propensity" and skill should be carefully kept apart although they are often mistaken for each other; as there is often great skill without any perceptible propensity, and strong propensity without any noticeable skill. "The galley slave has skill in rowing, but hardly the slightest propensity for this tiresome labor, and the young student of the piano often has an inclination to play although he may not have gained any skill therein." In the latter case it is true, continued practice will increase the inclination and interest, but not so much where enforced habits oppose natural talents. Even here much is often gladly done

that was formerly undertaken only with disgust, for one must truly "grow warm" over some work, and enjoy the pleasure it affords, to overcome the original aversion. This is, however, not always the case; on the contrary, the original aversion is often heightened, especially when the consciousness of compulsion, the feeling of aversion connected with that consciousness, and the contrasted conception of actual individual talent, unite to keep down the sense of pleasure which usually accompanies all work, and to create repugnance and disgust. Rochester writes: "The pleasure man takes in labor is especially dependent on the extent and the security in which he hopes himself to enjoy the fruits of his industry, for which reason the slave and the gavelman work with the greatest antipathy."

Propensity is not a general and necessary result of habit; it cannot therefore be used in the above way as a definition.

Deinhardt defines habit as follows: "Habit, they say, is the second nature, and herein the idea of habit is so clearly and precisely expressed that the greatest philosopher could not express it better. He means by nature in general, a being founded in itself, the appearance and actions of which necessarily proceed from its inherent laws. The second nature is to him, however, the mental that is, the intellectual and moral life, which every man is called upon to form and develop from within himself in the short space of mortal life apportioned to him." The proverb, however, says, Habit *becomes* second nature, that is, it lets many functions become second nature. If, as Deinhardt thinks, "Every form which the mental being of man takes upon itself in the process of growth is a true one, corresponding to the nature of man, only when it has the same precision, firmness, and infallibility as the form of a mere natural organism," habit, it is true, can aid the intellectual and moral life in acquiring this firmness; if carried to an extreme, however, it will only harm, as we shall see hereafter, the

self-consciousness and spontaneity which, according to Deindehardt, are the essential characteristics of this "second nature." Habit itself is not this second nature, as it is found not only in mankind, but also in beings of a lower order, where there can be no question of self-consciousness and self-determination, so that these ideas should not at all enter into the definition.

The same may be answered when Rosenkranz defines habit as "the identity of consciousness with the particularity of an action or suffering." Dumont refutes the opinion of several authors, especially physiologists, who look upon habits as "unconscious and involuntary actions in contrast to conscious and voluntary ones," as many habitual processes are consciously performed, while others not habitual (somnambulism) are less conscious and voluntary.

Murphy explains habit as a tendency of certain actions to repeat themselves, or, at least by repetition to gain greater ease of action, to which Dumont remarks that the tendency may be explained by the habit, but not the latter by the former; the tendency ("la tendance ou le penchant") is composed of habit and a surplus of available power.

CHAPTER II.

RELATION BETWEEN PSYCHOLOGY AND
PHYSIOLOGY.CAUSE AND EFFECT OF SENSORIAL IMPRESSIONS. — VARIOUS WAYS
OF EXTENDING SENSATIONS.

If we study some of these explanations and definitions more closely, we shall recognize that it would be of great value here, if we changed Psychology, the basis of Pedagogy, into Physiological Psychology, which in the well-founded view that every mental process is connected with a physical one in the brain and nervous system, keeps this physical process as far as possible in view in discussing and investigating the separate psychological functions. In doing this, we need not at all embrace the materialistic view which looks upon these physical processes as "the only things in actual existence," and upon thought as a "secretion of the brain," for every clear and calm consideration will recognize the shallowness of such views.

Cabanis claims that the brain produces the "secretion of thoughts," and his editor justly remarks, "This phrase remains celebrated," for several materialists have again and again attempted to establish its currency, while L. Büchner in his widely-read "Kraft und Stoff," characterizes thought as the powerful action of the machinery of human organs, and compares it to the effect caused by the steam-engine. But this view is as fallacious as the last, as it contradicts the law of the preservation of forces reigning in material nature.

Wundt says of materialism: "It does not recognize that inner experience has the priority of all outer knowledge, that

the objects of the outer world are ideas which were developed within us, according to psychological laws, and that, above all, the conception of matter is an entirely hypothetical idea upon which we base the phenomena of the physical world in order to understand their changing forms and play."

Neither should we permit ourselves to take a psychical action for granted without any physical basis in those few provinces which have been so far inaccessible to the somatic (physiologic-psychological) methods. Accurate investigation has proven that much which was formerly deemed a purely psychical peculiarity is based upon certain physical attributes and processes, and is made clearer by their investigation. (See Note 1.)

Bain says: "There are two widely different natural phenomena, one, consciousness or mind; the other, matter or material order: both are intimately connected. We must study the being of each in its own manner to recognize the general laws of their union, and to follow them to the explanation of separate facts. The mind is destined to be a double study, to unite the philosopher with the naturalist."

We shall therefore adopt this "somatic" method here, and in investigating the nature and value of the formation of habit, and of habit itself, glance first at the physical processes on which it depends.

The external cause of sensorial impressions is the movable and vibratile condition of matter which directly or indirectly acts on the ends of the sensory nerves, and here causes an impression which is carried by the nerves to the brain. (See Note 2.) The quality of the impression depends upon the *manner* of the vibrations, while its intensity is determined by their *strength*.

It is a well-known phenomenon that the irritation of the cell membrane surrounding the nerves of our organ of sight continues after the sensation caused by the actual impression has

passed away (lightning). (See Note 3.) The sensations of sound are likewise often continued after the immediate influence of the impression is over: the same seems to be the case with taste and odor impressions.

The after-effect of impressions in the spinal cord is stronger even than in the peripheral ends of the nerves.

Besides the special or particular sensory impression of the organs of sight, sound, smell, and taste, four kinds of motion under the proper circumstances will cause impressions on every sensory organ. 1. Mechanical pressure or shock; 2. electricity; 3. heat vibrations; 4. chemical actions. Each of these processes must have a certain intensity and velocity to become noticeable as a sensation. Among the manifold forms of motion in nature, only a few are capable of acting upon our sensory organs. The impressions of every sense form a regular series, and thereby produce the required condition for the similarity of impressions. There are, however, in general no regular connecting links between the impressions of the various senses, and there remain intermediate forms of vibrations by which our sensory organs are not touched. — *Wundt*.

Such forms of vibration as do not touch our senses lie between those which impress us as sound and those we feel as heat. (See Note 4.)

Our senses are only impressed by such modes of motion in nature as correspond to arrangements in any one of the sensory organs permitting a transmission of motion, a change of the physical into a physiological sensation. The ear will not perceive such sound waves as sound, and the eye such rays as light, the vibratory velocity of which exceeds a certain limit or descends below a fixed point.

Now it is well known that there are individuals who in consequence of the disposition and development of their sensory organs possess greater powers of discrimination in these departments than others, so that they can perceive tones, colors,

odor, or taste impressions as distinct and separate from each other, which others can no longer distinguish. They therefore perceive certain vibratory motions as distinct, which others are not able to distinguish from those near by. Further, it must be acknowledged that there may be organisms in which the dispositions belonging to man for taste and smell sensations, may have reached an actual development just as there may be, on the other hand, organisms existing which lack the capability that man has of receiving sound and light impressions, though they may be able to distinguish a few kinds of sound and light. (See Note 5.)

If, then, we must acknowledge that there are beings which, in consequence of the special structure of the sensory organs, not only have different sensations from those of man, but also in certain divisions of the senses feel more or fewer impressions as separate and distinct than he so recognizes, we can take it for granted that there are those which feel motions in nature, that do not act upon man as sensory impressions at all. But then the theory is not absurd that a new, yes, even several and many new natural powers may be discovered for the perception of which man has no especial sense, but which are made known to him in an artistic way and by aid of the other senses as soon as they transform themselves into the respective modes of motion; that, furthermore, this new power of nature—for which at the same time a new name must be created—forms the, as yet unrecognized, factor in phenomena which until now have not been explained at all, or only very unsatisfactorily. (See Note 6.)

After some time, when the sensation and conception corresponding to the outer impressions have vanished from consciousness and entered the domain of the unconscious, it would appear as though every sign of the physical process had also vanished. But there are many evidences that the impression did not pass away without leaving some trace, that it left a

certain disposition in the nervous system which is not like the actual molecular motion, accompanying the impression, but facilitates its reappearance. It is impossible that the latent conception should be the same as the actual one, or even that it should consist of a less degree of the same ; at least one sign is wanting, — the accompanying physiological irritation. But it is also true that the latter is not without its after-effect in a purely physiological sense.

Even in every nerve-fibre the susceptibility is heightened by every emotion, in case it is not too strong ; that is, a changed condition remains by which a repetition of the same sensation is rendered easier. In the central nerve substance, these results are very similar, but of much longer duration. In all processes dependent upon our nervous system we notice such after-effects, as, in their outer appearance, we are in the habit of calling practice. These are especially known to us from the motion of members of our body.

Numerous thoroughly studied experiences compel us to take for granted that analogous processes of practice (like that of the muscles) take place everywhere in the nervous system and its accessory organs. We must conceive the changes which are hereby produced in the organs as molecular deposits of more or less duration, which are as different from the motion which they render easier as the layers of chlorine and nitrogen atoms in nitro-chloric-acid gas are different from the explosive dissolution which is quickened by it. (See Note 7.)

"Where we have no knowledge of the true condition of the molecular changes, in which this practice consists, as is the case with the complicated structure of the nervous system, we have only the one general expression, which, however, has the advantage in contrast with the view of remaining material impressions, that it claims material after-effects, which continue at first, but with no practice gradually fall away, and do not consist in a continuation of the function itself, but in facilitating its repetition." — *Wundt*.

Some persons, it is true, think that the claim of physiological dispositions is a pure fiction, brought forward to gain the physiological foundation of which we know nothing, for psychological facts of which alone we have any knowledge. To these, Wundt answers that it is just on their *physical* side that we may hope gradually to know more of the nature of those enduring changes, which we shortly term dispositions; while, on the psychical side, we must forever give up this hope, as the limit of consciousness is also the boundary of our inner experience.

A great many of these scholars look upon the change which remains as a material trace which is similar to the former and to-be-repeated act, but of less force; but Wundt remarks that conceptions are not eternal beings, but functions; and that the remaining after-effects are to be thought of as functional dispositions. He attempts to explain the difference in the following way: An eye which has long looked into glaring light will retain an impression in the image left on the retina, but an eye which often compares great distances in space gains an increasing power in sight-measuring. The retained image is a remaining trace; the skill in measuring, a functional disposition; the cell membrane, and muscles of the practised eye may possibly be fashioned in just the same way as those of the unpractised one; and yet the one has a stronger disposition than the other.

Not only the peripheral ends of the sensory nerves retain such physiological dispositions, but we have a right to regard this power to retain as a general attribute of the whole nervous system, especially in the central division of the brain and spinal cord.

Luys says a sensation, during its transmission by the nerves, is not equally great everywhere, but grows like an avalanche the more it approaches the central parts. He calls *this quality which the nervous system has of retaining impressions*

of former sensations, "organic phosphorescence," and compares it with the properties of so-called phosphorescent bodies, which, after they have been touched by rays of light, still send forth a brilliant glow even after the source of the falling light has disappeared. (See Note 8.)

Others look upon this power of the nervous system as a universal function of all organic matter, of which function transmission is only a special form.

Hensen thinks: "Memory is not a change of the molecular arrangements of central parts, — nerve-cells, — because if it were, the rapid production of the substance of our body would very soon destroy all such trace-formations."

Ribot defines descent in the following way: "Heredity is that law of Biology by virtue of which all those beings endowed with life tend to repeat themselves in their descendants; it gives to the species what personal identity is for the individual."

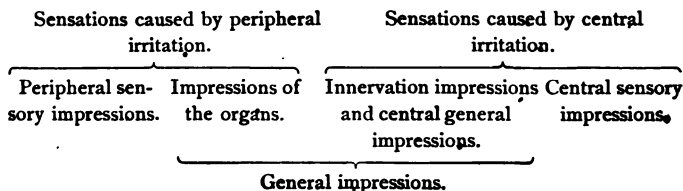
Charles Darwin and his followers attempted to show that actions of animals and of men, engendered by natural or artificial training, became fixed as habits, and then, like all enduring physical and psychical qualities, were transmitted to others, and thereby became inborn instincts and dispositions which, under the continued influence of constant natural laws, grew in force and strength.

Even though we think that decided clear conceptions and complete psycho-physical processes are not themselves transmitted, but only a disposition for them which facilitates their repetition, yet it admits of no doubt that heredity, one form of the described "universal function of matter," is of immense importance because it transmits to the individual the residuum of the psycho-physical development of all preceding generations as dispositions.

This disposition remaining in the nervous system from previous sensations is changed again into an actual sensation, by the

return of an impression or conception which preceded or followed the former function ; in the reproduced form it appears as a renewed function of consciousness, which recognizes it as identical with the former in "memory."

Aside from external impressions, and those engendered in the sensory organs as well as in the rest of the organism (general sensations), other impressions (so-called "automatic sensations"), in which the nerve-centres themselves form the point of issue, may cause a function. The best known actions which are caused by automatic sensations are involuntary and instinctive motions. But without doubt still other processes dependent on the nervous system — secretions, interceptions of motion, etc. — are sometimes occasioned by the same kind of sensation. According to this, we give the name "automatic sensations" to all those external motions which are caused by internal irritation of the motory central division. Luys writes : "Especially during sleep, when the sensory organs are more unsusceptible to external impressions, the internal sensations originating in the blood remain active, and automatic sensations, together with the functionary dispositions loosened by them, cause the imaginative conceptions of dreams. In pathologic conditions they are the cause of vague ideas and delirium as well as forced actions in the motory department." Wundt classifies impressions according to their physical origin, in the following manner : —



This after-effect of impressions, and the continuance of conceptional functions as functional dispositions, is of the greatest importance for all psychical life. Without the existence of external sensory organs, no conceptions would be formed; without that fortunate condition of the central organs, which renders the recall of former sensory impressions possible, there could be no connection between our impressions and conceptions. It is only through this that consciousness gains that continuity which distinguishes us from beings of a day by rendering it possible in the steady flow of mental processes to descend once more into this flow. For this reason we infer a present consciousness in the gradual succession of beings from the after-effect of past impressions. This only will show us whether that union of impressions, characteristic to all consciousness, has been preserved to a certain degree. For in every case "the ability to connect ideas and conceptions" serves us as "the scale of consciousness." As soon as we ourselves only meagerly introduce impressions into the continuity of our conceptions, or subsequently can only imperfectly remember them because of their incomplete connection, we ascribe it to a less degree of consciousness during the special time. Among the lowest classes of animals, which evidently retain only the immediately preceding impression, and earlier ones in rare instances, when they have been often repeated, we also infer an imperfect consciousness. In the mind of man, however, conceptions long since vanished, with the exception of those received in the first two years of existence, may, under favorable conditions, be renewed, especially when they were very intense, and intimately connected with the affections, or had often been received and practised, though an unlimited space of time has passed since their first impression.

Plato says in several places, "The impressions which man receives in childhood are the most important, as they are more easily impressed, and that which is learnt in youth is always

retained best. What is practised from youth up gradually forms part of the character ; wherefore we should imitate only the good, and nothing bad."

In youth the senses should be especially exercised, the limit of view extended, and the views of objects be impressed upon the child distinctly and minutely.

With regard to the combination and separation of ideas, that is, the actual mental labor, however, Alexander Bain and Spencer justly remark that the brain of children grows and gains in ability only gradually. Tasks which the child could not perform at all, or only with great difficulty, will be very easy a few years later. The child should, therefore, not have the abstract, but the concrete, offered it for its reception. It should receive no complicated and complete conception before it has gained possession of the simple elements which compose that conception. Spencer says: "As the simplest elements must be mastered, and as their conquest, let it take place when it will, takes up time, it will prove an economy to devote the first stage of childhood, during which no other mental labor is possible, to their perfect appropriation in all their modifications. We will not overlook the fact that temper, as well as health, receives a favorable development from the continued satisfaction which results from the proper provision of these impressions, which every child so anxiously appropriates."

In the development of every faculty, strongly contrasting impressions are the first to be distinguished, — tones of remarkable difference in force and pitch ; colors least related to each other ; objects most unlike in firmness or the combination of their parts. The advance to more closely allied impressions should take place only very slowly.

Luis says: "The brain-cells of very small children have their distinct histologic character. They are soft, gray of color, and in a manner pliant. In their dynamic relation they are properly in a virgin state, as they have not as yet been

exposed to any concussions ; and we may truly say that sensorial sensations which reach the as yet unconnected cells must make an impression more easily, because the ability of retention has not yet been proven." The brain-substance of small children is disposed in an especially high degree to receive impressions.

Where the ability of the nervous element to retain traces of the external impressions touching it has risen to a high degree, and is in permanent action, the resulting vibration in a manner calls forth an unconquerable erethism. This causes many pathologic phenomena ; in other cases this ability is abnormally small, and a partial or total failing of memory is the consequence.

The power of memory, especially the mere mechanical action of it, is strongest in childhood and youth ; it decreases in manhood, and still more in old age. And yet, even in youth, a mild, not remarkable impression, is rarely retained if it only occurred once ; it must be repeated in order to remain true and lasting. Experiment also shows that a single sensation will not visibly change the sensibility of the nerves, therefore it leaves no lasting impression. It is only when the sensation has been often repeated in certain intervals, that a marked and lasting change, a heightened sensibility, appears. Impressions occurring too often, however, and without the proper intervals, as well as excessive sensations, cause a weakening of the nervous system. On studying the general laws of the central functions, Wundt stated practice as the fifth main principle : "Every element becomes more suited to a certain function the oftener it is led by external conditions to exercise it. The frequent repetition of the same impression greatly facilitates the reception of a similar one, and the repetition of various sensations in a certain sphere of the nervous system renders possible the distinction of the finest differences in the force and quality of the received impressions. This causes the acuteness of the

sensory organs of so many barbaric races, which has very frequently been mentioned in works of travel and psychology; also the great ability of painters to distinguish colors, or musicians, sounds. The frequent performance of a function lessens the amount of exertion necessary for a similar or more difficult one. The scholar who has pursued a thought often, and viewed it from various aspects, is enabled to comprehend a similar one more quickly, and pursue it farther, while a layman would find it impossible to grasp the same thought, or would succeed only after great labor. On the other hand, a workman who uses the powers of his nervous system mostly in physical force, will, without difficulty, perform a physical labor to which a scholar would succumb."

The impressions and the dispositions resulting therefrom are not restricted to that part of the nervous system which was immediately excited, but they extend to neighboring divisions and enter into combination with each other. Very strong and often repeated impressions will also excite more distant parts, as the central portions of the spinal cord and brain are connected with each other by numerous nerve-fibres, and form a complete union. Dispositions in more or less removed parts are released, and thus the function begins also in those parts not directly affected by the sensation.

Wundt says: "After the sensation has taken place, primarily at the irritated point, it influences the neighboring parts, where the existing molecular action now also partly changes into sensorial activity." He distinguishes four ways in the extension of sensations: 1. Combination of sensific with sensitive fibres (sympathetic sensations). 2. Combination of sensitive with motor fibres (reflex motion). 3. Combination of sensitive with secretory fibres (reflexor secretion). 4. Combination of sensitive and intercepting fibres (reflex interceptions). Finally, the sensitive central organs may be connected with each other, which causes the automatic or reflexive sensation to extend to *neighboring nerve-cells*, and call forth sympathetic sensations.

Sympathetic sensation and co-emotion in the spinal cord : both phenomena happen, without doubt, when the sensation spreads so far in the gray substance that not only the fibres of the normal course of transmission, but also further longitudinal fibres of the front or rear divisions of the brain are innervated.

In this way arise sympathetic sensations and co-emotions of various sorts. Shakespeare says : —

“ For let our finger ache, and it endues
Our other healthful members ev'n to that sense
Of pain.”

And all who were ever troubled with toothache know that it is often difficult to localize the pain in a certain tooth, as sympathy causes a greater part of the teeth to appear sick and to cause pain. Just as well known is the sympathetic movement of the fingers, which the beginner in piano-playing can only cure by continued exertion. A summation of reflex sensations is caused when the sensitive fibres which were irritated enter the spinal cord at equal height, and on the same side, while such fibres as arise on different sides, and at unequal height, oftener cause a mutual interception of the interfering sensations. Irritation of the sensitive parts of the brain intercepts the reflex motions ; the removal of certain parts of the brain also removes the interception. With many narcotic poisons, also, the reflex aggravating action on the spinal nerve is often counteracted by the interception of the brain.

CHAPTER III.

RELATIONS OF CONCEPTIONS TO EACH OTHER.

POSITIVE AND NEGATIVE OR INTERCEPTING POWERS OF NERVES.

— BOND UNITING MENTAL AND PHYSICAL FUNCTIONS. — WHAT MAKES THE BEGINNER A MASTER? — THE FIRST IMPRESSION. — DOUBLE FORM OF PRACTICE. — ANALOGY BETWEEN PSYCHOLOGICAL FORMS OF ASSOCIATION AND VARIOUS FORMS OF PHYSIOLOGICAL PRACTICE.

THE conception called forth by some incident will not remain isolated, but awakens a large number of other thoughts and memories, and their action continues; finally it is intercepted by another strong impression, and by the connections surrounding the latter led into other paths.

Kussmaul thinks that when the union of the functions of separate parts which are caused by a single impression is only loose, it will grow firmer, often inseparable, by its repetition. "It seems just as if impressions that repeatedly transfer themselves from one point to another put aside obstructions on the connecting paths, and make the way freer, smoother, and more traversible."

According to Wundt, "there are positive and negative or intercepting powers in the nerves. The former arise when the loose chemical combinations of the nervous elements are converted into firmer ones; the latter, when firm combinations are changed to loose connections.

"The balance between positive and negative molecular work brings forth the stationary condition of the nerve in which

neither its temperature changes nor any external action is performed. Through the influences of the impression the negative as well as the positive molecular work of the nerve is enlarged. External labor, muscular twitching, or irritation of the ganglia-cells, can be caused by the impression, only when it continually accelerates the positive molecular action in a greater degree than the negative. After the twitching has ceased there will for some time be a surplus of positive molecular action, which appears in the strengthened effect of a second impression. Of the entire amount of positive molecular action which is set free by the irritation of the nerve, no doubt only a portion is changed into exciting effects, or, as we generally term it, appears in arousing actions; another part may change to heat; a third, to stored-up (negative) action. The arousing action is only partly used in releasing external effects of irritation, muscular twitching, or irritation of the ganglia-cells, as a heightened irritability exists during and after convulsive motion. A newly approaching impression will, therefore, always find a surplus of arousing action. Should no new irritation take place, this surplus most likely changes to heat." "Even in the peripheral nerves the intercepting powers gradually decrease if an impression is repeatedly made upon them; at first, so long as the ability to act has not been exhausted, the susceptibility will rise with repeated excitement; this excitement is therefore generally accompanied by a change in the nerve-substance, through which it loses the ability which particularly belongs to the central elementary parts, and causes the intercepting effect connected with the restitution of the inner powers. It is further believed that the stirring or changing of these parts of the nerve must overcome obstructions and interceptions, whose resistance is in inverse ratio to their susceptibility."

Conceptions which frequently enter our consciousness together or directly following each other will grow to a firm association just as similar ones do; and as soon as one appears,

it will awaken the others connected with it. If we view a landscape with attention, and afterwards picture a single feature of it to ourselves in memory, the others will also immediately appear with more or less clearness. Luys says: "If a certain group of brain-cells are simultaneously subject to a course of sensorial impressions, a mysterious band will immediately enclose this whole group so that they almost seem to form a union." Now any sensation need only strike the sight, hearing, or smell, and in consequence of this mysterious union the other simultaneous impressions will immediately be reawakened as "recollections." He designates this as "a powerful instrument for the education of the mind and the methodic development of its abilities"; because man can thereby attach "series of recollections, series of conceptions, of experimental facts, and of scientific principles to the first recollection." What is true regarding the intellectual may also be said of the physical functions, both simple and complicated: of writing and drawing, of dancing, fencing, and swimming, of playing musical instruments, of spinning, weaving, knitting, and embroidering, as well as all other accomplishments, and hard labor. What was at first performed slowly and with great effort is gradually done more quickly and with greater ease: a small provocation excites one part of the nervous system, and immediately the other parts begin their action.

What was it that so facilitated these performances by their repetition, and made the beginner a master? It was the ability of the nervous system to retain former impressions as dispositions, and permit these to enter into combination with each other. "The wonderful co-operation of our motific muscles for distinct purposes, the harmonious union of movements for the accomplishment of special performances, is only possible because the excito-motory cells of the spinal cord possess the ability of keeping back latent traces of the first impressions affecting them, and retaining for a longer or shorter time the ability to

follow in the path of the first impression. The very first impression vibrates within us like a dim, faint echo of the past, and brings about the sensations of automatic life ; continually interposing, always the same, it invariably comes forward in the shape of unconscious recollections, causing regular rhythmical motions in which unmistakable traces of the first impression are revealed.

Wundt distinguishes a double form of practice. In the first place, a certain separate movement, which may be more or less complicated, may be rendered easier by practice. This is direct practice. The invariable consequence of it is that the practised parts also grow more skilful in the execution of other relative motions. Secondly, practice may consist of the combined exercise of different motions, which are executed by different parts simultaneously or successively. This is the indirect practice or mutual drill. The invariable consequence of this is that the various motions practised together will combine more and more intimately, even involuntarily, with each other. Current examples of such combined practice are the motions of the arms, hands, and feet in certain mechanical performances, such as climbing, swimming, spinning, weaving, etc. These various forms of physiological practice show a complete analogy with the psychological forms of association. There as well as here we find two cases : a certain emotion facilitates the occurrence of a similar or related emotion, and various emotions practised together remain united in simultaneous or successive order, according to the method pursued in practising them. If to this unmistakable analogy we add the supposition developed before, that every conception is accompanied by a central physiologic sensation, we are forced to the conclusion that every psychical association of conceptions is accompanied by a corresponding physiological association of the central innervation proceedings.

Charles Darwin also speaks of the fact that actions, sensations, and feelings which happen simultaneously or in close succession

strive to combine and intermingle, and in such a way that if any one of them is in future offered to the soul, the others are inclined to be re-awakened. Herbert Spencer says, in the preface to his study of sociology: "As soon as two conceptions, often repeated in a certain order, become united in that order, and as soon as muscular movements which it was at first difficult to combine in the proper manner, even when special attention was directed thereto, grow easy by practice and finally automatic, this repeated generation of a certain action renders this action comparatively easy by aid of the sensations calling it forth."

Darwin hereon founds his first main principle of the expression movements, "the principle of appropriately associated habits." Certain complicated actions are in certain conditions of the mind of direct or indirect use in facilitating or satisfying certain sensations, wishes, etc. ; and as soon as the same mental condition is occasioned, in however weak a way, an inclination to execute the same motions will be there in consequence of the power of habit and association, though in this case they are not of the least value. "All actions of consciousness appear to be continually striving to combine with past and simultaneous actions." — *Wundt*.

Herbart had previously placed the persistence of the will parallel to the persistence of conceptions, and had spoken of a "memory of the will."

CHAPTER IV.

PROPERLY ASSOCIATED HABITS.

DEFINITION OF HABIT AND HABITUDE. — PRINCIPLE OF ASSOCIATED PRACTICE, REPETITION, HABIT, IN THE INORGANIC WORLD. — RESULTS OF HABIT. — NEGATIVE AND POSITIVE USE OF POWER. — DIVISION AND CONCENTRATION OF POWER. — AIM OF HUMAN EDUCATION. — OBJECT LESSONS.

LEON DUMONT says : " Knowledge is a habitude of the intelligence." Gassendi has very ingeniously compared habitude and memory to a paper which easily resumes the folds according to which it has been folded before. Dugald Stewart looked upon habitude as a result of the association of ideas. This is, however, mistaking the effect for the cause. He sees the close relation, even the identity, between both phenomena, habitude, and the association of ideas as well as motions. He recognizes that the one phenomenon is more general, and the other only a kind or particularity of the same ; but he does not notice that the association of ideas or motions is only one of the most frequent and remarkable forms of habitude.

Exactly the same occurs with the motions excited and regulated by the brain. And these dispositions here, as well as in the intellectual functions, intimately combine, and by their concerted action render complicated actions possible, and perform them more quickly and easily. Practice and habitude cause all this ; they effect the union of the separate parts of the intellect and physical motions, as well as the union of these two with each other, and permit them to gain greater skill and ease in the execution of their offices.

If we now proceed to the definition of habit and habitude, we shall say, *Habit is the disposition of a psycho-physical organism by which it is enabled on given (outer or inner) inducements directly to perform relatively similar functions*, simple or complicated (directly, that is, in a being more highly developed psychically; without any preceding consideration and arrangement of separate actions by a decided impulse of the will). *Habitude is, furthermore, the development of this disposition by the repetition of relatively similar impressions and the reactions following them.*

This definition, it is true, does not entirely correspond with that of Deinhardt and Rosenkranz, but it is nevertheless not wholly wanting in advocates. In the last century the pedagogue Resewitz wrote: "Like a machine, which, if continually turned in the same manner and moved by the same driving-spring, receives a decided inclination and disposition to this mode of motion, the human soul receives a decided inclination and propensity for those modes of expression and feeling to which it has grown accustomed by repeated similar practices." The physician Dr. Kussmaul says in later days: "If we often combine a certain feeling or conception with a motion, the latter will finally take place involuntarily as soon as that feeling or that conception is called forth, and *vice versa*. Certain notes recall certain words to our mind, or the words, the notes, and we sing, or whistle, them lowly to ourselves. That bond which the practice of our central organs knits between various stations of feeling, conception, and motion, we call habitude. Stations, which are in the habit of corresponding, answer each other's dispatches very promptly, while those of others are not answered at all or only with hesitation and doubt." Wundt remarks: "Many phenomena (especially the influence of practice on combined motions) prove that when a sensation is frequently carried through the ganglia-cells in a certain direction this direction will in future cases when impressions touch

the same cells be pre-eminently disposed to act as conduct"; and at another place: "External association (according to co-existence in space and succession in time) rests upon a habit formed by repeated practice. As soon as conceptions, which may be without any internal connection, are repeatedly offered to our mind in external combination, there will be an inclination to renew them in the same connection. We may hence term the principle which is at the bottom of this form of associations the one of associated practice, by which we already show in this name that it is only a special adaptation of the Law of Practice so all-important in all psycho-physical transactions."

Ravissou says: "Habitude is not only a state; it is a disposition, a virtue. Habitue has the greater force when the change which has produced it continues or is often repeated." The first action alone, which is preceded by no other and repeats no other, whatever may be its origin, owes nothing to habit. On the contrary, to it habit owes its existence. It possesses primarily the power of preparing, animating, facilitating, those actions which follow it. "Repetition only strengthens habitue; for an act even when it has not been completed more than a single time leaves a disposition which is the point for the departure of habit. But if this first accomplishment did not create the habitue, thousands of repetitions cannot call it forth, for the repetition produces little more than an accumulation, and to that accumulation every act, even the first, must have contributed in a certain measure." Dumont cites Aristotle, who says that some individuals derive a stronger habit from a single impression than others from oft-repeated ones. The impressions themselves also have different results (as we remember some we received only once more vividly than others which often met our view). Habits need not be active all the time to retain vitality, but can exist in a latent condition; hence their intermission, their interruption. If the continuing dispo-

sition shall again be turned into a function by a new impression, the nerves must possess the necessary energy through a sufficient inflow of matter. Memory is dependent on the strength of the blood and the energy of its circulation; he who, tired out by long mental labor, cannot recall many conceptions, should wait until the nerves by an influx of matter have regained the energy necessary to perform their function.

Lemoine claims that inorganic bodies cannot acquire any habit, but thinks that the acclimation of plants is nothing more than the acquirement of habits useful or pleasant to man. Trees will accustom themselves to another soil, to another climate. Leon Dumont joins Auguste Comte, who connects Habit with the Law of Indolence ruling in the inorganic world; every body once modified would remain in that condition forever if it were not disturbed or changed in its individuality by some power.

Tito Vignola and Herbert Spencer explain the same principle. This ability (of memory), which is founded on a universal cosmic law, is confirmed and strengthened by repetition, which thus engenders the habit, even in bodies of the inorganic world. Thus the periods themselves which are mirrored in all cosmic facts, as well as the habits of circling nature, may in part be ascribed, according to a forcible expression of Alighieri, to this inner peculiarity of things by virtue of which they retain and repeat the modifications, the acts, the processes, begun within or introduced into them. Leon Dumont attempts to illustrate the presence of habit in the inorganic world, and defines it as follows: "Habitudo in a force is its manner of reacting on other forces, a manner of reacting which results even in the same action which the other forces before exercised on it."

If we now proceed to investigate what results in general follow habit and habitudo, we shall find about the following:—

(1) HABIT SAVES POWER. — Practice has two great results. It not only teaches the selection of the muscles which guaran-

tee the attainment of certain aims, but it also puts an economic and practically regulated use of the motory muscles in place of the formerly unregulated and useless waste of power and explosive eruptions.

"Kussmaul writes : "The sprawling and kicking of the active child gradually change into grasping, seizing of objects, walking, etc., the babbling, hissing, to the articulated word. Only the Hottentots and Kaffirs have permanently adopted the smacking sounds into their alphabet." The age of youth excels in great activity of the imaginative power, and with regard to motion ; ever restless, the growing child cannot sit quiet for any length of time ; it runs and jumps about aimlessly. Herein much power is wasted, which in early years the child may not know how to apply better, but which in school he must change into attention and intellectual activity. It is impossible to perform heavy physical labor, and think deeply at the same time. Just as an intense thought necessarily interrupts every outer physical action, a leap will disturb every order of thoughts. The vital power consumed in a leap is lost to the train of psycho-physical motion necessary to thought ; and the mind has neither the power to continue the course as before, notwithstanding the loss, nor to replace the loss from its own perfection of power. We can, it is true, divide the vital power at the disposal of our will, but it always has its maximum, and that can only be used for one kind of activity in the proportion in which the others rest. Just as we rest one arm to employ the greatest possible power in the other, so we must let all parts of our body rest to use the highest possible power in our mind ; and *vice versa*, the mental activity must rest as much as possible to perform movements of the greatest power possible with our limbs. Hence, we see the deep thinker as quiet as possible, and one who runs and lifts burdens never at the same time in deep thought. The two modes of work are opposed to each other and cannot be simul-

taneously pursued. The same relation which exists between the psycho-physical and purely physical activity also exists between the various divisions of the psycho-physical actions. To be lost in the view of an external object and think deeply at the same time is impossible; one cannot see and hear attentively at the same time. To thoroughly do one, we must abstain from the other; and as the attention is divided, it is weakened for the separate objects. "The vital power used in splitting wood is not only quantitatively similar to the vital power consumed in thinking, but they may even be interchanged." — *Fechner*.

The child should therefore learn to sit still, and save its power; it must be accustomed to be passive in order to have the power for a decided active exertion at the proper time. The youth will sometimes revel in fantastic, impracticable ideals, and the maiden often show great sentimentalism. Habitude should save both from useless waste of intellectual power, so that it may in the latter case be used beneficially in practical life, and in the former be devoted to the execution of valuable and practicable ideas. The youth, perhaps even the man, grows dissatisfied with the existing conditions of the world; in hasty and thoughtless love of liberty he attempts to break through the barriers which public law has raised, and widen the field of his activity. Habitude must here exercise its beneficial influence from the earliest years; the boy must learn to look upon obedience to his parents and teacher as a stern necessity, that he may gain reverence for authority and learn to bow to it even when in future this authority is no longer represented by parents and teachers, but by other persons, and by existing laws and ordinances. The child shall be accustomed to obey without a murmur, that the adult may not use up his best strength in a thoughtless strife against circumstances and his own self, but know how to use his power within the set bounds in a beneficial way.

Lazarus, in his "Lectures on Pedagogy," says: "The motto '*mens sana in corpore sano*' is frequently misused; for there have been many great scholars and sages who uttered very sound thoughts, and yet had a feeble body. The greatest part of the power of the nervous system is here used for the intellectual function." Haller and Arnehan furthermore found many cases where not only in an ailment of small parts, but even in widespread diseases of the brain, the psychical functions remain undisturbed in consequence of the vicariate of other parts of the brain. Every one, however, who suffers from a feeble body must exercise a certain energy to conquer the pressure of physical pain, and this power which he uses in a negative way could be used with more benefit in positive, useful action. It has also been proven that in cases of apparently undisturbed mental functions, during brain disease, like those mentioned above, these actions were of shorter duration.

The distinction between negative and positive use of power may, however, be extended to the ethic-social life. In every private enterprise, a large part of the attention, in every state, an important part of judicial and police labor, is caused simply by the dishonesty of many persons. Could this be put aside, and every one be fully trusted, it would be possible to devote far more power and time to positively useful works.

Neither should the boy weaken his power by dividing it, even in the pursuit of lawful ends. With perfect justice Lotze in his medical psychology points to the two principal dangers,—a too great limitation and a too great enlargement of the circle of impressions and actions. It is true, a broad education and wide activity have an inestimable value; it is, however, universally known that really great things are only accomplished by concentration. For which reason man should early be accustomed to place limits for himself, not to make his sphere of usefulness too small, neither to extend it immeasurably, but to concentrate his energy, especially upon those actions which are

best suited to his talents, and which are placed in his way by external circumstances or inner self-consecration. He dare not thoughtlessly spring from one decision to another, now take up this work, now that ; but he should steadily follow the plan once adopted, and firmly execute it with concentrated power." Lazarus, in his "Lectures on Pedagogy," speaks of the psychology of indolence, and points out the following facts. (1) Laziness is often not dread of labor in general, but of some especial labor ; there are people who are always very busy, and do everything except just that which they should do. (2) The putting off from to-day to to-morrow ; many letters are not written because the paper was not in the usual place, etc. (3) Dread of the beginning ; when the work is once begun, it is continued with a certain delight. (4) Diligence of idleness. Many children go to work with quick energy, not from a special love for it, but to get through with it and back to their play as soon as possible. We find similar incidents among adults. Plutarch mentions that many soldiers in Otho's army, foremost among them the Pretorians, pressed forth to battle, less from actual bravery and courage than a desire that the war should soon end, and they be at liberty in the shortest possible time to revel in the pleasures of the capital.

We said above that with regard to the functions of motion, habitude was useful in causing a union of separate parts. In a few cases it must, however, separate the natural connection to prevent a useless exercise of power. The sympathetic motions can, and must, occasionally be set aside by practice and habitude. The child must be accustomed to give one impression time to take root, and not follow it immediately by a corresponding action, that it may not pass away with that action into air. Lazarus also says : "Deep thinking requires time ; it is therefore a great pedagogical mistake if teachers — as is now generally done — urge their pupils to answer rapidly, and praise those who immediately have an answer ready. This causes

everything to be lowered to a mere effort of mechanical memory. The pupils should be given time for individual contemplation, for deep and energetic thought-labor." This is, however, only relatively true. The theorist, it is true, must lay less stress upon rapidity than on the profundity of thought; in practical life, however, rapidity of decision and immediate application of the knowledge gained are of immense value; and schools have to educate not only theoretical thinkers, but also energetic, practical men.

Kussmaul is right when he says: "All human education aims at the control of inborn and acquired reflexes by sensible and rational motives."

(2) HABITUDE STRENGTHENS POWER.—Every member of the body which is practised grows strong. The smith, who is accustomed to swing his heavy hammer the whole day, has stronger arms than the dancing-master or racer, who mostly exercises his feet. The laborer who lifts heavy burdens can gradually bear greater pressure, and the athlete, Milo, so renowned in ancient times, succeeded in carrying a steer only by beginning with a small weight, and gradually increasing it to larger ones. The influence of practice is best shown by the right-handedness of most people. The innervation-centres of the large brain are adapted for all manual labor in a double manner; but nevertheless most people are right-handed, and use the left brain only for the majority of handiworks. If those parts of the right side of the brain adapted to language, but not developed functionally, are wanting in right-handed persons, speech will nevertheless be retained, as those of the left hemisphere remain, which alone have been practised. Should these also be lost, *aphasia* will be the result. Left-handed persons must grow aphatic if the lesion enters the right hemisphere. Both facts have been proved by experience.

"The loss of speech occasioned by lesion of the one hemisphere may be recovered if the individual practise the other

side, as is frequently successfully done, in case the ability to write is lost by an injury to one of the hands." — *Kussmaul*. Wundt, in his study of the general laws of central functions, points to the fact that the fifth main principle, that of "practice," is especially effective in connection with the fourth, that of "localized functions," as well as the third, the "substituting functions"; this explains the fact that when certain parts are injured or degenerated, the vicariate of others will only begin slowly and gradually.

In the same way the acuteness of sensation of some barbaric races mentioned above, the ability of painters to distinguish color, of musicians sounds, as well as the skill of any artist, is only possible by unremitting practice from youth on. It is well known how Demosthenes, by stubborn practice, conquered the drawbacks of a feeble body and a defective organ, and became a great orator. Even those unfortunate ones who are debarred from one or more sensory fields may, by practice and concentration of power, accomplish astonishing performances by the aid of those senses left them. The deaf, mute, and blind Laura Bridgman reached a comparatively high grade of intelligence by the untiring practice of her sense of touch. If now we turn from these unfortunate ones to the "favorites of the gods" who, as geniuses endowed by nature with glorious gifts, have erected for themselves monuments, lasting to the end of time, by their imperishable works in science and art, we shall recognize that the talent, it is true, was the condition of their great deeds, but that these men would never have reached so high a point if they had not developed and enlarged their talent by steady practice from early youth.

Thus, aside from the manifold dispositions of the brain, the finer structure of a sensory organ may often determine a certain talent in music and painting, because the ease of its function creates a desire to perform it further, and thus leads to skill and talent.

Yes, in all intellectual actions habit strengthens by a concentration of power. By a repetition of the conceptions, it offers man a clearer picture of the external real world. Pestalozzi, in his essay, "How Gertrude teaches her children," says: "Children in their earliest years need a psychological guidance to a rational view of things. We should restrict ourselves in the development of their mind: (1) To widen continually the circle of their conceptions. (2) To impress upon them, firmly and distinctly, the conceptions brought to their consciousness. (3) To give them an ample knowledge of speech for all with which nature and art have made them acquainted. The preparations for the development of our powers are principally confined to placing before us in a smaller circle, and in a regular series, what nature presents to us at greater distances and in tangled relations, and bringing it closer to our five senses, in relations which facilitate and strengthen our outer and inner receptivity for all impressions, and raise and enlarge our senses themselves, by daily presenting to them the objects of the world in greater numbers, more durably, and more correctly." Spencer says: "If the education of the senses has been neglected, all later education has about it something sleepy, blurred, insufficient, which it is impossible ever to make good again. The man, busy in practical life, in art and science, needs his own power of observation, for which reason it should be already developed in the child. Object lessons should not only be given in a way entirely different from the one generally used, but should also be extended to a much larger circle of objects, and be continued to a much later age than is now done. They should not be confined to the contents of a house, but include all that fields, woods, quarries, and the seashore offer. They should not cease with early childhood, but be continued during youth in a way which gradually and imperceptibly leads to the investigation of the naturalist and the scientist."

(3) HABITUDE LESSENS THE NARROWNESS OF KNOWLEDGE,

which, in consequence of the limits of our discursive thinking, permits only a few conceptions to exist simultaneously in our consciousness ; and brings the separate conceptions by their repetition to greater clearness.

The inner point of vision has the quality of governing by successive apperception a larger circle of conceptions. Wundt looks upon twelve simple conceptions as the maximum of consciousness for relatively simple and successive conceptions.

(4) HABITUDE STRENGTHENS THE MEMORY AND GENERALLY ENLARGES THE MENTAL CAPACITY OF MAN.

CHAPTER V.

THE INTELLECT.

MEMORY AND THE IMAGINATION. — PROCESS OF LOGICAL THINKING.
— CONCEPTION SERIES. — LAWS OF THE ASSOCIATION OF IDEAS.
— VARIOUS TALENTS RESULTING FROM A COMBINATION OF THE
IMAGINATION AND THE INTELLECTUAL FACULTIES.

MEMORY has the great value of storing material and holding it in readiness to be worked over by the imagination and logical thinking. Imagination creates nothing new, but it brings the elements of the materials gained by internal and external experience into new combinations. Logical thinking likewise creates nothing absolutely new, but it allows the acquired material to dissolve into its elements, and brings these into new relations with each other. The value of both lies in the original and comparatively new manner of these dissolving and combining processes. Mental action, it is true, should not remain a mere work of the memory, that is, an accumulation of dead matter; the received material should be digested and worked over, ordered and combined by independent labor. An overburdening of the memory renders this arranging and consummation more difficult, even makes it impossible, and is therefore detrimental to logical thought as well as the free flight of the imagination.

Bain says: "We can engender an unnaturally strong memory at the expense of the reasoning or the imaginative powers, or even the disposition." If, however, we occasionally speak in a derogatory way of "examinable knowledge" in general, we should remember that only after the acquisition of rich material, numerous connections may be gained, and the "far-sight" be

developed. Lazarus says: "As the gods of the Epicureans dwell in the space between the worlds, so the thoughts live between the separate elements, that is, in their combination." True! but before this combination can be made, and the thought be shown a dwelling-place, the elements for the union must have been gained by experience and study. The acquired material, it is true, need not always be "examinable" in order to be used and consumed, but it is of the greatest importance in practical life always to have experience and knowledge at hand. Many great minds, as Leibnitz, Lessing, Kant, Aristotle, and others, distinguished themselves by extensive positive knowledge, and showed that it agrees very well with a powerful mental activity and productivity. Leibnitz even took "Clearness in words, usefulness in matter" for his motto, and sought in every way to make practical use of his learning and thoughts. J. B. Meyer thinks the scientist, as well as the poet, needs the power of imagination; and Wundt remarks that neither imagination nor mental power alone, but a union of both, produces talent and genius. Bain, in "Mind and Body," speaks of the number of impressions man can bear in memory. Memory shows great individual differences, which were formerly classified in a very superficial way after their objects; they distinguished a word, number, fact, memory, etc. It is, however, better to take the number and energy of the impressions into consideration, and call the memory (1) comprehensive, when the number of impressions at its command is large; (2) faithful, when it reproduces the impressions for a long time, and in but little changed aspect; (3) quick, when it can rapidly reproduce impressions. (A faithful and a quick memory are but rarely found united in high degrees.) Furthermore, we distinguish according to the processes active in the reproduction, (a) mechanical memories, which rest on the association of ideas; and (b) logical, which depend on the logical union of impressions. The former is specially active in

youth in memorizing, and of value in learning languages, etc., in the main, in appropriating matter. Later in life this grows weaker, and the logical memory takes its place; this is active in the study of scientists and preachers. The excellence of memory in children has often been termed the first measure of talent.

Attentive transcription is a great aid to memory, as by the distinct placing of every separate element in writing, the entire series of perceptions is strengthened and confirmed; while of hasty taking of notes we may still say as of old, the discovery of writing harmed memory. The so-called "Mnemonics," or art of memory, which is said to have been discovered by the Greek Simonides, and found especial honor during the middle ages, has a decidedly bad effect, as it burdens the memory with too many unnecessary minor impressions. Waitz adds that the pupil is accustomed by mnemonics to view and mark everything according to chance external combinations; he loses or weakens his sense and interest for the comprehension of the internal connection, forms more or less mechanical aggregations from the masses of his thoughts, and is thereby led to the path of polymathy, where thoroughness is valued according to the accumulated masses, and man feels content in this continued amassing, instead of entering the course of independent thought and research. Von Rein says: "The power of retention is practised by clear, correct, and animated impressions; by frequent repetition it is made faithful; by little aids and helps, according to the laws of the association of ideas, the power of memory gains a skill that probably renders all artificial means useless."

By the aid of habitude, the experiences and knowledge collected by memory are arranged and brought into certain "conception series" and groups; they confirm and secure the various combinations of conceptions, and facilitate their application to practical life by building the bridge from theory to practice.

Wundt treats of the various methods of the combination of conceptions. I. Associative combinations: among which he not only classes those of conceptions following upon each other, but also those in general which are produced by any relations of the conceptions to each other, without the immediate co-working of the apperception (active attention). He distinguishes: 1. Simultaneous association. *A*, Associative synthesis. The composition of sound, sight, and touch, impressions from similar elements. In intense synthesis a number of *similar* sensations intermingle; in extensive synthesis, however, *similar* and *dis-similar* sensations unite. A conception of some space through the eye includes: (1) light impressions; (2) fixed local signs of the retina; (3) motion or innervation impressions. *B*, Assimilation: a new conception enters our brain, — generally an immediate sensory impression, — a former one similar to it is reproduced, and these two conceptions now mingle into one. *C*, Complication: combination "between the impressions of disconnected, locally separated sensory divisions," that is, between sight and touch impressions, sight and sound sensations, etc. 2. Successive association. Wundt reduces the four general laws for the association of ideas, embracing similarity, contrast, succession of time, and co-existence in the same place, to two — inner and outer (the latter including succession in time, and co-existence in the same place); "for," says he, "the contrast depends upon the emotion connected with the impressions, which, moving between the contrasts of pleasure and displeasure, transfers these to the impressions themselves. Moreover, a relation of similarity between the impressions was never wanting, and from this the contrast started." II. Apperceptive combinations (produced and governed by the active attention). 1. The combination of simultaneous thoughts. *A*, Agglutination of impressions: "impressions following each other unite to form another impression, containing the first two as its elements." (See Note 9.) *B*, Blending or apperceptive

synthesis, that is, a union of impressions following one another, in which the latter no longer exist in the new conception produced by their union. (See Note 9.) From a blending of ideas arise the shifting and condensing of impressions. In the blending processes, every new element which is admitted eliminates some of earlier date; in the agglutinative unions the old elements are retained, though new ones are added. Condensation of ideas is often followed by the reverse process, viz., the analysis of the produced collective impressions into a series of successive ideas; the dissolving of ideas: this may take place in the same or any other order as that in which the blending of the separate elements proceeded. A dissolution takes place, especially where the union of elements has become so close that they can no longer be distinctly perceived separately. (See Note 10.) *C*, The ideas. 2. The successive combination of thoughts: *A*, the simple; *B*, the compound processes of thought.

Of repeated elements stand out more prominently in the separate impressions; those which accord well with each other remain, and are strengthened; the incongruous ones are smoothed over and blurred; thus schematic conceptions and ideas are produced. Wundt defines "a conception," according to its psychological development, as "the complete blending, through active apperception, of a ruling single impression with a series of connected impressions." Since the time of Socrates, thinking in conceptions has justly been looked upon as an ideal, as it permits man, notwithstanding the narrowness of his consciousness, to gather a number of phenomena in his conscious mind by a few such "representative concepts."

Practice makes the master of intellectual activity, and causes thinking to become easy, so that many things, as chess, and heavy literature, which cause others great effort, offer recreation to the practised thinker, just as the peasant boy, used to hard labor, looks upon bowling as a recreation. Fechner says,

"according to the measure in which the mind grasps higher relations, it feels a stronger need of employing them, and is more easily bored when they must be missed." Special dispositions, but still oftener, frequently repeated mental functions, produce distinct habits of thought; the objects are viewed in a certain way, the conceptions combined in a certain manner, and thus artifices of thought are developed. "Just as surely as every one possesses peculiarities of physical action which distinguish him from his fellow-men, he possesses peculiarities of mental activity which give their distinct character to his conceptions. There are artifices of thought as well as those of muscular movement. There is an acquired mental skill for recognizing things from an especial point, as well as a physical dexterity for developing distinct directions of bodily power. And there are intellectual perversities which are called forth by a certain treatment of the mind as there are certain incurable physical awkwardnesses which result from certain daily-repeated actions." People who have an especial faculty for the accumulation of perceptions rarely care to generalize, while persons inclined to generalize are generally such as mostly use the thoughts of others, and who themselves observe, less from an interest in special facts, than from the wish to make use of these facts. This contrast may be followed in yet narrower limits between general and special thinking. Those who are inclined to far-reaching speculations rarely pursue with success investigations which have to be confirmed by separate truths, while the scientific specialist generally has but little inclination to busy himself with wide points of view. This will suffice to make plain that formal habits of thought have their source in special forms of mental action, and that every one's habits of thought influence his judgment of every question placed before him. It will also seem clear that, in proportion as the question is involved and many-sided, the habits of thought must form a more important factor in their effect on the conclusion reached.

Wundt, in his lecture on psychology, speaks of the various forms of talent resulting from a combination of imagination and intellect, and proposes the following table :—

I. INDUCTIVE FACULTY.

<i>A.</i> Intuitive imagination.	<i>B.</i> Combining imagination.
1. Talent for observing (in every field).	2. Talent for inventing.

II. DEDUCTIVE FACULTY.

<i>A.</i> Intuitive imagination.	<i>B.</i> Combining imagination.
3. Talent for analyzing (systematic naturalist and geometrician).	4. Speculative talent : <i>a.</i> philosopher, preponderance of combining imagination ; <i>b.</i> mathematician, preponderance of analyzing intellect.

Often several of these forms will be united in one mind, but rarely the higher or highest grades of each. Even as regards intuitive imagination, in which the separate impressions possess great liveliness and sensible vivacity, and combining imagination, in which the union of the separate elements is more prominent, "a development in both directions to any great degree is very rare, for the greater the sensational strength of the separate imaginative conceptions is, the more difficult will it be for the perception to change quickly from one to another." Still more is this the case in a union of imagination and intellectual disposition. "Those talents especially are rarely united which imply an opposite course of the imagination as well as of the intellect, such as the observing and the speculative, the inventive and the analyzing talent." Goethe possessed the first and second of the above forms, but he was an enemy of all speculation, especially mathematics ; the mathematician Gauss combined the third and fourth, but he lacked

the power of observation ; in the same way most philosophers are bad observers. Great talent is mostly one-sided, as in consequence of the early interest in a certain direction, power concentrates itself more and more in that direction, and the other branches are thus developed less.

CHAPTER VI.

THE WILL.

INFLUENCE OF HABIT ON THE ENTIRE PSYCHOLOGICAL LIFE. —
VALUE OF ASSOCIATES AND ENVIRONMENT. — HABITUDE OF
PERSONAL ACTION. — ADVANTAGES OF SCHOOL VERSUS HOME
EDUCATION.

"HABITUDE is of no less importance to the will than to the intellect. Herbart justly draws a parallel between the persistency of impressions, and speaks of a memory of the will." He investigates its importance in the formation of firm principles and character, and says: "This much is certain, a person whose will, like the impressions of the memory, does not without effort appear the same whenever the cause is renewed — who must come back to his former resolve by contemplation — will have great trouble in forming his character. And it is because this natural perseverance of the will is not often found in children, that training has so much to do in forming it." Kern says: "Training must supplement the disposition with regard to the memory of the will." Herbert Spencer writes: "Not by precept, though it be daily heard; not by example, unless it be followed; but only through action, which is often called forth by the relative feeling, can a moral habit be formed. The more frequently the conscious will has brought the conception-process into a certain direction, and led it to a distinct action, the less power will he need to do it again; the more easily will man pursue the same course in his thoughts and actions." Leon Dumont says: "The will has two forms: its action is either an inner one, and points to conceptions and

their union (apperception) ; or an external one, and produces physical motion. The former is the original one, and precedes the other." Wundt writes : " Under favorable conditions the two forms, that is, the apperception of an impression and the reacting motion, take place at the same time. By saving power and strengthening the intellect and will-efforts, habit aids us in reaching the appointed goal with greater ease, be it in deep theoretic thinking or in the energetic actions of practical life."

Less favorable is the influence of habit — as we shall see more minutely later on — upon the emotions. But even here it is not without value : with regard to the higher, æsthetic feelings, habit causes a liking for coarseness gradually to recede, and an appreciation of the finer and more delicate shades to take its place, as the relations of an educated ideal life, which permit the true appreciation of a work of art, are only gained by oft-repeated impressions. Religious feeling must often be strengthened in the belief and joyous trust in the providence of God, and thus be practised before Religion can become the real comforter in all woes of life, and can give and confirm inner peace, the moral feelings receive their true strength only by the repeated view of goodness and personal good actions.

Habitude, by a repetition of impressions and the actions following them as reaction, *exercises a great influence on the entire psychological life.* Aside from the already mentioned favorable effect which habit has in giving the continued satisfaction of success by a summing up of the separate feelings in every mental and physical labor, the constancy ruling within it lends to the whole being and actions of man an individual stamp. All physical actions have their certain psychical reflex, which, by its frequent repetition, becomes a condition, and the peculiarities of the repeated thought, emotion, and will form themselves into abiding characteristic qualities.

The proverb : " Evil communications corrupt good manners," is known everywhere. Bad associations will at first provoke

a discord in the soul of a man inclined to be good ; which he attempts in most cases to escape by assimilating himself ; the company becomes endurable, and he gradually grows bad himself. On the other hand, good examples in Life and History have a vast influence on the soul of the child as the rage for imitation in every direction is strongest in early youth. Parents and teachers should therefore take care that — as Plato and Plutarch justly observe — they themselves as well as the surrounding company set the child a good example. It is true this is not always possible in consequence of various circumstances, for what Niemeyer once said still holds good : “ If among the lower classes the children are left to themselves, and must carry on their games in summer on the grass, in winter in court and hall, because the parents are busy in the field, in the workshop, and about the house ; the children of the upper classes must depart from the presence of their parents, because these have to fulfil their day's labor in the assemblies, at the dinners and suppers, at balls, in the theatres, and at court. The nurseries of the higher classes are the meeting-places of nurses and servants ; in the most favorable cases these are uneducated and stupid, in less favorable ones they are coarse and corrupt people. The mother herself is often kept from her children by the claims of society. “ Those families are therefore justly to be considered fortunate in which intelligent, unpretending women, educational assistants, or even older sisters, can at such times share the care with the mother, and employ the little ones in the proper way.” Rousseau puts to every father the demand to educate his son himself, so that “ hired persons ” may not gain the love of his child. He likewise speaks of the importance of keeping all impure impressions at a distance. “ It is very desirable that the child should never receive any impure impressions from its surroundings, as these impressions, even when they are afterwards kept down by an energetic will, suddenly reappear in moments when the will is, or can be, less effective, and with

morally good persons just in the same measure in which they were formerly suppressed."

Association is of as much value, especially in youth, to the intellectual as to the moral life. Goethe truly says in "Truth and Fiction": "The academic life, even if we cannot praise our actual diligence, offers endless privileges of education in every way, because we are ever surrounded by men who possess science or are in search of it, so that, though it may be unconsciously, we gain some nourishment in such an atmosphere." Personal intercourse with the tutors especially offers this mental food in great quantities, a fact which even now is not duly appreciated by the students.

Rousseau speaks of the benefit derived from intercourse with prominent intellectual men in Paris: "Far more is learned from an intercourse with the authors than from their books. And even the authors are not the ones from whom most is learned; it is the spirit of the society which develops a thinking brain, and widens the mental horizon as much as possible."

It is well known of what advantage the intercourse and good example of a refined society, in which we dare not "indulge our inclinations," is to the formation of good manners. Man easily adopts the manners of those with whom he frequently associates, particularly when he honors and loves them; and what was formerly but a strange example confronting him, gradually and imperceptibly becomes his own thought and action. *The habitude of personal action, however, has a far greater effect than the good precepts of others.*

The family, the parental home in which the man was born and spends his infancy, is where he receives these repeated impressions! There is a vast difference between a man who was raised in a thoroughly moral family, and one who spent his youth among people of looser morals, even criminals. The son of a professor receives manifold, imperceptible impressions even in childhood, which facilitate and hasten his intellectual

development; he can reach the appointed goal quicker, and with less effort, than the child of persons whose intellect is less developed, who must gradually outgrow the opinions and views adopted in childhood, and conquer the bad influence of his surroundings by inherent power. The child of parents occupying a high social position will, aside from the influence of inheritance, be early advised by parents and teachers, of all the requirements of social life, and thus soon and easily acquires the assurance and firmness of fine manners; while he who grew up with another class, and spent his childhood among uneducated, even rough people, will, notwithstanding all his later efforts to make these social forms his own, be exposed to many slights and bitter insults, and sometimes experience in his own life the truth of "*Naturam expellas furca tamen usque recurret*"! As the moral, intellectual, and social state of the family is of vast importance, so also the love of order, harmony, and industry, etc., reigning there will exercise a great influence on the child. Plato, in several of his works, shows that the best training for boys and youths does not consist of precepts and rules, but in letting them continually *see* some one *do* that which he admonishes others to do; he points to the fact that those Persian kings who were born on the throne became unfit for rulers in consequence of their effeminate training, while others, like Cyrus and Darius, who did not receive this effeminate education, excelled as powerful monarchs. Wealth, he says, exercises an injurious influence on the soul; and too great poverty drives through discomfort to shamelessness; that amount of wealth which neither entices to flattery nor compels want is the most desirable in his opinion.

Goethe says: "Children, as aspiring natures, generally choose at home the example of him who seems to live and enjoy life most. They see in a father who makes himself comfortable the distinct rule according to which they must arrange their habits; and because they gain this insight early, their

wishes and desires mostly grow in great disproportion to the powers of the house. They soon find themselves limited on every side; the more so as every new generation makes new demands; and parents, on the other hand, would prefer to grant their children only what they themselves enjoyed in former times, when every one was content to live in a more temperate and simple manner. Subordinates obey no one more readily than him who rules without feeling bound by his own commands." Waitz says: "Where the external relations render the fulfilment of almost every wish possible, where many persons are always occupied with a child, one of whom will certainly grant what the other refuses, where they are only anxious to keep the child merry and friendly for the present moment, it will not learn to subordinate its desires to a higher power, for it wants the experience that there is such a power, which demands subjection without fail; and in consequence hereof, it will fall an easy prey to the chance play of sensual desires, and the inner discord they occasion." Waitz also shows that the order or disorder prevailing in the house are unconsciously transferred by the child to the mental and moral state of the world. Not unjustly has poverty been termed the school of great men, only it must not be too severe so that it may not depress the courage of man, harm his character, render the education of his faculties impossible, and cause him to perish. If this is not the case, narrow circumstances serve to encourage children to strive to attain something by their own exertions, and thus strengthen their energy. The literature of ancient as well as modern times is teeming with proofs of this fact, and if we wanted to mention all those who, in more practical fields arose from limited conditions, their name would be legion! In these men, a strong confidence in their own power is developed and great self-consciousness, which has an invigorating effect, and forms a powerful stimulus to further labor. Modesty and consideration for others demand that this self-consciousness

should remain unexpressed. If it, however, comes out more or less strongly, its cause is often not taken into consideration enough in judging such people.

The number of members in the family, the age and sex of the other inmates, the religion and the occupation of the father, exercise a great influence. The children very often enter the same occupation as their father, because they early become accustomed to this circle of thought. The daily business of the parents is often spoken about, and the child therefore early grows acquainted with all the impressions connected therewith; it imitates those occupations, and learns to love them, even before it is able to understand their object. The conditions among which it grows up decide whether in its imagination it exercises as a soldier, or busies itself with books like a scholar, begins this or that occupation, etc. — *Waitz*.

The influence of the mother on the soul of the child has justly been dwelt upon to a great extent in prose and poetry, and Pestalozzi remarks: "The picture of its mother, which accompanies it everywhere, becomes itself the conscience of the child." Of greatest importance is the choice of playmates and friends, also the association with schoolmates and university students, etc. *Waitz* writes: "Thus obstinacy and perverseness are more easily cured by schoolmates than even by parents and teachers, as the former oppose him who appears quarrelsome and moody with nothing but simple inattention; they do not concern themselves about him, and therefore generally see him among themselves again in a short time, led back by his social wants. Vanity and conceit also remain unheeded, or are compelled to withdraw in shame and hide before the ridicule of their companions. Power finds its master, and is thereby saved from self-deception. Awkwardness is laughed at and thus forced to attention and effort. Indolence is spurred on, effeminacy forced to deny itself. Diffidence is encouraged to come forth. Security of physical

health, rapid and versatile progress in knowledge, but especially an understanding of self, and a power of self-control in thought and action, the individual can only acquire by a life in company with others."

This good influence of associates, therefore, forms the principal advantage of school-education in contrast to home education. Pestalozzi pointed out the prominent fact: "Father's and mother's punishments rarely make a bad impression. A wholly different effect is produced by the punishment of school and other teachers. While in the family love rules, in school the legitimacy of law comes to the front. The advantages which private education offers, the consideration of individuality, and the rapid progress of intelligence do not balance the advantages which a school-education offers. The continual supervision in the former is not always useful; it may even be harmful." Bain remarks: "The presence of a large assembly exercises an electric influence on the individual and arouses it. Every effort in presence of a visitor is hereby changed and deepened in its character. This is effected in class instruction, and the drilling of large masses of soldiers, because all strive to reach the general level."

Not only the persons among whom the child spends the first years of its life, but the entire outer environment and material relations in which these years are spent, are by the frequent repetition of certain impressions of vast importance for its intellectual development. The condition should not vary too much so that it may occasion the reproduction of the same wishes. They should furthermore be simple enough for the child to see through them, and determine whether any new relations are introduced, or merely old ones involved. Frequent change of the condition of life is injurious to proper training as well as to the consolidation of a train of thoughts. Jean Paul writes in his autobiography: "Truly there is even a greater misfortune than to be at the capital, and that is, to be

carried, as the child of noble parents, for years through foreign cities and among strange people, and to know no other home than the coach." Lazarus shows that by far the greatest number of Roman authors who afterwards attained celebrity were not born in Rome itself; he thinks the cause of their greatness may be found in the impressions of their early youth; the child in the country has simpler but oft-repeated impressions; hence they endure longer and the psychical actions become more concentrated while the rapidly changing and varying impressions of the metropolis are more volatile, remain a less time themselves, and yet render the inner concentration more difficult. Lazarus speaks of a "Tempo of Thinking," and points out that people who perform physical labor slowly, also think slowly; that, furthermore, country people who are known for the clumsiness of their thoughts excel in a firmness of will, and are principally the ones who in battle "stand as a wall." (On the other hand, the peculiarities of many important talents, the rapid change of motives for actions as well as thoughts, may be explained by the great variability of physical life in general. Every one has the faults of his virtues!) Too great unwieldiness is, however, useless and harmful in life; to many peasant boys the years of military drill are of great advantage in lessening the clumsiness of their movements and carriage, as well as of their thoughts.

We may, indeed, find that the large intercourse and the varied impressions of the metropolis mostly educate quick children who are always ready with an answer, show no diffidence, and always appear self-conscious in conversation, but who, later on, excel less in concentration of thoughts, and that a quick superficiality is considered by them of more value than great depth of thought. Do not many scientists withdraw from the noise and whirl of the large city into solitude if they wish to finish a work requiring clear, sharp, and concentrated thought? It is true, we must remember that practical life also

requires presence of mind and quick readiness. Kern justly remarks that "regularity of life should not degenerate into monotony, simplicity into want." Lotze writes: "Monotony as well as a continual change of impressions provokes a disturbance of the train of thoughts, desolation and dreamlike stupor in the former; psychical vertigo and want of control in the latter case." If concentration has been taught in youth, a change of the surroundings will prove very beneficial, even necessary; it is well known what benefit a mature youth or man derives from travelling, which causes him to recognize other conditions than those prevailing at home, and thus gives him a survey of life and strengthens his character and energy. "Man must issue forth into hostile life," for a talent may be formed in "solitude," but a character only in "the rush of the world." — *Tasso and Antonio*.

"A noble man cannot in narrow bounds
His wisdom gain. Home and the distant world
Must influence him. Fame and reproach
He there must learn to bear with calm. Self and
Others is he taught to know full well. No
Longer will solitude gently soothe him.
Enemies will not, friends dare not, spare him.
Thus while struggling, the youth gains his power,
Feels what he is, and feels himself a man."

Locke, however, truly remarks that travelling into foreign lands will be of great use to a man only when he is familiar enough with the affairs of his native land to be able to exchange original opinions and personal experience with the people he meets, and to compare and combine the new impressions with those already acquired.

After the education of a youth has been completed, the actions of the chosen vocation bring man impressions which by frequent repetition grow and give him an individual stamp. It has occasionally been found that in laborers their occupation, as

well as the circumstances surrounding these, exercised a distinct psychical reflex, which in consequence of the repetition gradually became a characteristic quality. The mercurial barber has different characteristic qualities from the butcher or cooper or smith. Lazarus even thinks that the volatileness, the inclination to busy themselves with politics, and other qualities which tailors show, may be explained by the fact that they have light and rapid work which occupies only their hands and during which they can speak and sing, while the shoemaker, who, in consequence of his labor with wire and frequent drawing and stretching of the leather, can talk less and only think — inclines more to mystic and philosophic reflections. The dancing-master and artist differ in character from the silent thinker. The farmer and laborer accustomed to physical labor, as well as the merchant who moves mostly in practical life, have a different view of life, and look upon everything from a more practical standpoint than the teacher or scholar who is accustomed to indulge in profound thoughts and reflections and speculations about the value of his ideal mental possessions. The lawyer who by his business remains in more frequent intercourse with the outer world is generally, like the officer, a better social companion than the theoretical thinker who spends most of his time in study over his books. He who would care to write a psychological investigation of the peculiarities of military character could not only show that the dexterity of the officer in social forms is connected with the precision and rapidity of movement acquired in his official activity, but also that the strong class-feeling, aside from the influence of inheritance and surroundings, is largely due to the erect carriage, to the close-fitting dress — which with the body also holds the soul together. Every one can easily observe how much freer and braver he will feel while walking erect in the open air than while at work in his study or office. Fechner attempts to show us that an imitation of the physical expression of a foreign mental condi-

tion will teach us to understand the latter much better than a mere view of this expression.

The repetition of certain actions and functions caused by habit is what, next to the degree of education, creates the opinion of rank, and causes the different classes to have different views of the world and life in general. The same will also be seen in the history of nations. At all times there were distinct national characters which were caused in part by the influence of climate and nature in general, by the degree of enlightenment, etc., but principally by the habits continued through many generations. The Athenian, cherishing arts and science and the ideals of life, thought differently from the Spartan, who especially prized physical strength and hardihood, or the world-conquering Roman, who managed political life with so much energy. The volatile and social Frenchman is in general less accustomed to deep thinking and firm wishing than the German, and the German is far outstripped in practical sense by the Englishman and American, who are more active in commerce and manufacturing. Buckle in his work, "History of Civilization in England," speaks of the importance of uninterrupted labor in the formation of national character. He says: "Inhabitants of the Frigid Zone never show the striving industry met with in the Temperate Zone. By want of light, and the severity of winter, they are compelled to give up their work. The classes otherwise working are hence inclined to disorderly habits, and the national character shows perverseness and moodiness. Thus in Sweden and Norway, where the severe cold and shortness of the days, and, on the other hand, in Portugal and Spain, where heat and drought often interrupt the labor, the national character evinces unsteadiness and fickleness in marked contrast to those who in a temperate climate have no cause to interrupt their labor." Roscher says: "No people will surpass the English and Anglo-Americans in labor-energy, the Germans in labor-comprehension, and the French in labor-taste," The

difference between the impressions and the whole psychical life of the sexes is caused partially by distinct physical impressions by the earlier or later development, but also by the difference of position in life and social intercourse as well as all the experiences called forth thereby. Women have a greater inclination for the concrete than men because they are more dependent upon it from youth up. Girls gather less mental store than boys, and use it more rapidly but with less diversity and division. Spencer goes even farther, and explains characteristic peculiarities of women in the Darwinian way, by saying that in former times the women possessing these particular qualities in greater degrees than others found more approval and were chosen for the propagation of the species, whence these qualities were transmitted by inheritance, and during a continuance of the favorable circumstances were brought to greater prominence.

It is plain that under otherwise similar circumstances, among women who lived by the favor of the men, those who succeeded best in pleasing were most likely the ones who remained alive. And, if we take into consideration the prevailing transmission of habits on one side, it will lead in a series of generations to the effect that a special striving after praise, and the ability of developing the whole nature for this purpose, appears as a distinctly feminine trait. In a similar way, the wives of cruel savages under like circumstances must have had an easy time in proportion to their ability to hide their feelings. . . . In some cases, again, the arts of persuasion enabled woman to protect herself and children, where a lack of these arts would have caused her to disappear early. A further ability may be called the power of quickly distinguishing the volatile feelings of those surrounding her. A woman who, in barbarous times, could immediately detect the rising passion of her wild husband by the tone of voice, a slight motion, or the expression of his face, probably escaped dangers which a woman less able to

understand the natural language of emotion was obliged to endure. From the continued practice of this ability, and the success of those possessing it, we may infer that it took root as a distinctly feminine trait. . . . The effect which the show of power, of whatever kind, by men, has on the affections of women, is widely discussed by Spencer. He thinks that among women of unequal taste, those who were charmed by manly, physical, or mental power, and married men able to protect them, enjoyed longer life than those pleased with weaker men. To this inevitable admiration for power may be ascribed the fact which has caused so much discussion: that women generally care more for men who maltreat them if the rudeness is accompanied by physical power, than for weaker men who treat them well. With the progress of culture, the admiration for physical power gradually changed into that for mental power in every field, and from this developed the feeling of reverence in viewing all that which betrays conspicuous power or ability,—the respect for authority, etc. In this way we can also explain the inconsistency of women, their skill in quickly turning any action another way, and giving to their own expressions, as well as those of others, a meaning suitable to the time, but often entirely different from the original one. For, as they could well use these little aids in reconciling their angry husbands, these qualities have gradually been inherited and strengthened, and thus grown the lasting possession of the sex. What in social life we call "custom" is nothing more than the habit-of-action of a large majority continued for several generations.

CHAPTER VII.

SPECIAL HABITS.

CLEANLINESS. — PUNCTUALITY. — NEATNESS. — ENDURANCE. —
SELF-CONTROL. — OBEDIENCE. — POLITENESS. — ATTENTION. —
DILIGENCE. — UNSELFISHNESS. — CALISTHENICS. — STUDY.

IF, now, we examine the various habits, we shall find that, according to our definition, there are as many different kinds as there are physical and mental functions. We might, perhaps, divide them into I. Physiologic dispositions and their combination in sensific parts of the nervous system; therefore, habits of action: (1) the senses, (2) the memory, (3) the intellect, the association of ideas, (4) the will as controller of the impressions. II. Dispositions and their combinations in motory centres, therefore, practices of voluntary and involuntary motions. These could again be divided either according to the organs which they affected: (1) organs of speech, (2) arms, hands, and fingers, (3) legs and feet;—or according to the centres in which they originated: (1) spinal cord, (2) brain. III. A union of both the truly mental (intellectual) and the motific functions (combination of sensitive with motory parts). Biran and Rosenkranz distinguish active and passive habits; the former strengthen the spontaneity, the latter change the organism itself by impressions received, and bring it into accordance with them. To consider them all would carry us too far and beyond the limits set for this work, we dare not even here splinter our strength, and must try to economize. Therefore we will take up only those habits which are of special importance in actual education.

Very early, even from its birth, the child is to be accustomed to cleanliness and neatness, first passively, then actively. Cleanliness is not only of the utmost importance with regard to health, but exercises an influence on the whole mental life. Mere physical cleanliness is followed by its psychical parallel. Spencer even says: "Dirt is generally accompanied by an inclination towards crime. Cleanliness creates a fancy for order and regularity in general, which education must develop by forming habits of punctuality and neatness. Both are of equal importance, though Curtman would place habits of punctuality even before those of neatness."

Women generally have a predilection for harmonious arrangements as regards space, while men place more value on punctuality. Besides observing regular hours for eating, the child should be accustomed to a proper division of time as regards work and rest: it must learn to keep things in order. Furthermore, the child should early be inured to bear unpleasant things, so that the man may bear severe physical and mental labor, and pain of every sort with greater ease. The feeling of physical health and strength is the surest foundation for the characteristic qualities of courage, resolution, and discretion; emolition of the body is often followed by debility, and renders self-control far more difficult, while physical exertion and hardening form a good preparatory school for mental energy, steadfastness, and firmness towards self; and, when proceeding from a free will, already presuppose a certain degree of the latter. The educational influence in hardening the organism should render it capable of bearing the influences of climate, of bodily pain, and physical exertion. Ruegg well notes that special diversion of attention helps to bear a pain. A child cries more when it is pitied for some slight accident, and requested to show the painful place; if its attention is diverted to something else, it will soon forget the pain. Cicero says that next to reflexion a tension of the mind and energy of

will helps to conquer the pain, as straining the physical powers helps to bear weights with greater ease. Kant thinks the mind can conquer its sickly emotions by a mere resolve. In habituating a child to bear physical pain we should, however, not say to the child, "It does not hurt," for it feels the pain very distinctly, and notices that the adult is trying to quiet it with a lie; we should say, "It *only* hurts," and thus teach it to feel a contempt for pain. Since the Doric race made physical training a main principle of education in contrast to the effeminate training of the Oriental Greeks, various authors investigated its worth, and its importance is as well recognized by civilized nations as proven to uncivilized ones by practice.

The child should, however, not only be accastomed to perform strong and powerful, but also fine, functions. It must gradually learn to control the vehement expression of its feelings. Jean Paul says: "Children share with weak persons the inability to cease." Every one knows that children who have once begun laughing or crying cannot be quieted for some time, while the small cause thereof is in no proportion whatever to the length of these emotional eruptions. It is in most cases *not* stubbornness or obstinate will which the child shows, but the inability to suppress its emotions; this inability education must do away with; it should not be permitted to become permanent, as it has unfortunately done in many cases, as is evinced by the gossiping and lamenting of many adults, particularly women. Even men find it difficult, sometimes impossible, to suppress a hearty laugh at slight causes, though it occasion them great unpleasantness.

The child should control its motion and learn to sit still; but it must learn at the same time to be active when required, and not to permit its psychical functions to be interrupted by an unexpected impression and new relations. It shall therefore lose the extreme diffidence and bashfulness that are caused by the interruption of a psychical process, which otherwise proceeds

undisturbed. A strong and unexpected emotion lengthens — as has been shown by experiment — the time of reaction, that is, the duration of the nervous process which takes place between the reception of an impression and the reaction that follows it, by checking the activity of the will. It is the same phenomenon which, in a stronger degree, is characterized as terror. — *Wundt*.

Exner, however, states that the time of reaction may be shortened by practice. The length of the apperception of complex impressions is greatly diminished by continued practice. To prevent the ability to become active from degenerating into officiousness it must be combined with modesty and humility.

A union of these qualities, as well as the action of each at the proper time, produces the habit of obedience, which should begin as soon as the will of the child begins to form itself. Rousseau very properly remarks, in answer to Locke, that one should not explain the reasons for a command to a child, not argue with it; the child will not comprehend the reasons, and the long argument have a far different effect from what it was intended to have. It will either, as mostly happens, grow monotonous, and permit other thoughts to arise, or its sound will have a pleasant effect on the child without causing it to realize the serious content. Locke, it is true, says that we should explain the reasons in a manner and form comprehensible to the child; but this is exceedingly difficult, often even impossible, and reasoning with the child had best be avoided altogether. . . . The disposition and character of children are only rarely formed by much reasoning and proofs of what is good, right, and duty. "The different wish of the educator must appear to the child as a firm, invincible power against which its self-will is absolutely powerless. . . ." Francke thinks we should implant three things especially into the child's mind: 1. Love of truth; 2. Obedience; 3. Love of work.

Admonitions and reproofs often lose their aim by being too long, for the child in the meantime entertains other thoughts or picks up especial points against which it chances to be opposed, and in its mind delivers a speech of defence by which it is finally entirely convinced of its right. Lazarus mentions a case in which a father attempted to explain the outrage of its behavior to a child that had been making a noise during its mother's sickness. The child listened attentively to the long, well-set speech and at its end said to his father, "Say that again"; the sound of the speech had pleased the child, notwithstanding it had not understood anything of its import or taken it to heart at all. A similar result of lengthy speeches has often been noticed among uncivilized nations though the language was unintelligible to the hearers, yes, even if it had no logical sense. We shall find parallel to most observations in the nursery, in the mental life of uncultivated people, and the psychological studies made at both places are complementary. The command given to a child should be short and decided, not permitting a recall; the child must learn to look upon obedience as a stern necessity, the authority of him who uttered the command as an absolute power against which it can accomplish nothing. Only in this manner will it gain any respect for authority, whether it be exercised by parents and teachers, or in later life by law, custom, and persons in a higher position. But here also the age of the pupil should be taken into consideration; the older pupil and youth should not be entirely deprived of the reasoning and converse which are not given to the child. It has been truly observed that Kant's morals, by the rigid severity in the execution of the idea of duty, by the decisiveness and independence of the moral demands greatly advanced the training of men in Prussia, and thus assisted in the stern political regeneration of Germany.

Hence the sense for propriety and a refined bearing should early be impressed upon the child. Although we can give the

reasons for its laws in general, this often can not be done with distinct cases. Though we do not place so much value on a refined bearing as Locke who aimed at the education of an aristocrat, though we would train the pupil rather to deep, clear, and precise thinking and energetic action, than form him into a society dandy or hollow talker, yet the ability of never-lacking tact in our intercourse with various persons, and not offending by bad manners, is of some importance. We do not mean to say that the child should be invited to parties and soirees, and that it must forever be in the company of older persons. The former renders the child unaccustomed to hard work, lessens its pleasure in action, and permits a fondness for a mere life of pleasure to develop very early; the latter makes the child precocious and spoils its pleasures of youth. Continued supervision—as Herbart already showed—is not of much use. Companions and schoolmates during the time for recreation often have a better influence on the mental development of the child than the teachers with their steady admonitions and rules. Parents who possess ready tact, especially mothers, can awaken the sense of politeness in the soul of the child without exposing it to the above hurtful influences. Good behavior, that is, the union of habits—the controlling of involuntary motions and emotions, the ability to be passive or active at the proper time, to lose excessive bashfulness and still remain modest, the flexibility of the limbs as well as ease and refinement in all functions—is not only useful in pleasing people and occasionally facilitating the accomplishment of a certain practical end, but the firmness and security resulting therefrom is of vast importance for the psychical life in general. Waitz shows that he who as a child excels among children through the suppleness of his body and the grace of his outer bearing, which is closely connected with the former, will mostly turn out to be enterprising, independent, a leading personage, while the awkward one is much ridiculed, often put aside, only rarely

sought for by others as companion, whence he gradually adopts the good or evil qualities of the hermit, viz. patience, modesty, resignation, or sensitiveness, suspiciousness, pleasure at the misfortunes of others, etc. Even among grown persons the greater or less ease of which they are conscious in their movements determines whether or not they feel at home in society, how far they will give up to it, or treat it with reserve, how much of what it offers they will receive, with what degree of pleasure they seek society, and, what is most important, *what* society this is. Luys connects the fineness of psychical feeling with the fineness of the skin and the touch-impressions thus received. It is well known that women in general, but particularly those leading a life of leisure and not using their hands for rough work, have a fine, tender and sensitive skin; the sensory nerves are more exposed and open to all external irritation. Touch and feeling are continually in a state of vibrating tension, and thus the mind receives numberless perceptions and touch-recognitions which usually remain entirely unnoticed by man. Hence in women of refined society, but also in men having a sensitive skin, the development and expression of mental abilities keeps step with the development and fineness of the sensibility of the skin. Fine feeling becomes almost a second sight, so that the mind feels and sees fine shades of difference which remain hidden from most men. On this is founded the important moral feeling known as soul-feeling. With individuals of tender, easily-irritated skin, whose sensorium like a drawn string is ready to begin vibrating on the slightest shock, it is characteristically developed. Compare with these the workman who handles his heavy tools and bears burdens: with him the skin is thick, and between the network of sensory nerves and the bodies affecting them lie dense epithelial layers. Study the intellectual and moral sensibility here, and you will find that there is none of that delicate feeling which lends a peculiar character to the mental bearing of individuals with a fine skin.

When the child enters school, the latter should strengthen, confirm, and develop the habits mentioned before. To these are added other habits, especially that of attention. In the beginning the child has no active, but only passive attention, that is, in the rapid change of the manifold impressions and reminiscences it will turn to the strongest one. This is to be first used and gradually transformed into active attention, which is able to choose among the impressions and received conceptions, leave the strongest unnoticed at times, and firmly fix in its place a weaker conception, which has more or less connection with others, or which, even without these connections, is required at the given moment. Waitz says: "The child originally possesses no power by which it can give its train of thoughts a certain direction, retain it in such an one, or turn it away therefrom; it is led on entirely by the external impressions on the one hand, and by the associations and reproductions, which are joined to a perception of external things and its bodily condition, on the other." "The teacher can therefore at first only make thorough use of this involuntary attention of the child." The ability of a voluntary straining of the attention grows in the same proportion in which the inner connection, the ease of surveying and connecting the separate parts lying within the domain of impressions to which it is directed, is increased. It is only by accustoming the child to check the rapid change of ideas, and select and fix a distinct impression from among the manifold variety of impressions crowding in from without, — furthermore, by keeping its voluntary attention directed to this fixture, — that we may hope to save it from distraction, and lead it from clear, precise, and firm views and conceptions, to the depth and concentration of logical thoughts. Lazarus writes: "Especially in a class where the large number of pupils renders a continual direct instruction of each one impossible, the pupil should be accustomed to follow the indirect instruction with a lively attention, and thus collect the

rays into which the activity and words of the teacher have been separated within himself as a focus."

Attention is increased: 1. By a firm, erect position of the body. This leads man to control himself inwardly as well as outwardly. On the other hand, attention is shown by an erect position of the body, by the vivid eye, and by the expression which the face receives from the activity of the soul. Its opposite is recognized by the weary, sunken carriage, the staring and lifeless or wandering gaze, the "don't care" expression, betraying foreign psychical emotion. 2. Attention finds a mental aid in the interest which the pupil has for the subject, in consequence of his natural inclination or the education of his teacher. Interest is increased in the same measure in which we allow the pupil to grasp the easily comprehensible ideas lying around every object, and gradually proceed from these to others, lying farther away. We should be content with very little at first, and allow what has been comprehended to be thoroughly digested by a systematic repetition, and continually extended by successive representations from different points of view. Hereby not only the simple object is grasped more completely and intensely, but an interest is awakened for such objects as were at first incomprehensible to the child. Ruegg says: "We have exceedingly sharp senses for anything that interests us, and at the same time very dull ones for anything immaterial to us." But, in general, only that is of any interest to us which we are to a certain degree capable of mastering, which we at least think to comprehend. The celebrated pedagogue, T. Ziller, studied the importance of interest very minutely, and declares that instruction must particularly awaken and develop a wide and many-sided interest in the objects taught and the mental labor, while the separate particles received may occasionally, without harm, fall a prey to forgetfulness. It is this wide and various interest that distinguishes the truly educated and mentally active person; and the increased

interest in separate subjects causes him to be saved from distraction, notwithstanding a generous education, and enables him to use his concentrated efforts in separate fields.

Interest, furthermore, awakens and increases diligence, as, on the other hand, it is heightened by earnest but not excessive activity. And diligence is what every school must foster and practise. The child should early be accustomed to the view that a life consisting of labor and care is precious, and that only hard work leads to the goal. Man must recognize that no disgrace is due to labor, be it physical or mental, and at present valued more or less highly in the world; but that idleness is not only the root of all evil, — for in “an idle way labors the evil spirit,” — but is besides unworthy of every man whom God endowed with a healthy body and mind. Spencer remarks: “The opinion that it is honorable to do nothing but seek pleasure, and in a certain sense dishonorable to spend life in providing others with the means of this pleasure, though considerably weakened, still holds ground.” He points to the fact that there is something low in being a mere consumer. But as the ideas of honor vary among different nations, and at different times, he thinks that “those of our contemporaries, who glory in consuming much, and producing nothing; and who concern themselves little about the welfare of their fellow-men so long as these provide them with good meals, soft beds, and pleasant diversions, will be looked upon with amazement by people of future times, who live under higher social forms.” This change in ideas about honor is not only possible but very probable. As the wealthy in China even now have their nails grow so long that they must be turned back, and the ladies submit to long tortures, “that their compressed feet may show their inability to labor,” the disgracefulness of commerce was in former times an article of belief firmly upheld among the upper classes of European nations. Now we see how members of the land-owning class enter into business; and even the sons of peers

take up a scientific profession, or become merchants ; and how the feeling that people of their position have public duties to perform spreads more and more among the wealthy, while the absolutely idle among them are considered blameworthy. "If this refinement of the ideas of honor is further developed, they will," Spencer thinks, "in future be amazed that there should ever have been persons who thought it admirable to enjoy without working, to the cost of those who work without enjoying." Roscher says : "The higher culture rises the more honorable is labor, while barbaric nations despise it as slavish. And if every one would experience the delight of life, if he will prove the truth of the saying, 'after ended labor we rest well,' he must learn that labor is not only sweet, and may also turn very bitter ; but that the joy at its completion is the highest and, according to the view of some, the *only* sensual one which has no admixture of disgust." "Epicureanism fails because it leaves important parts of man's nature unpractised ; it neglects the satisfaction resulting from successful labor, and it lacks the gratifying consciousness of services done to others. Egotistical enjoyments, when continually searched, grow weak ; while the desire for them is satiated in a much shorter time than our waking life gives us, thus leaving us times that are either empty or spent in efforts to attain enjoyment after the desire for it has ceased. They also grow weak from want of that broad contrast which arises when half of life is spent in active labor. The negative causes of dissatisfaction are connected with the positive cause alluded to,—the absence of that content won by successful labor. One of the most solid and lasting pleasures is the feeling of personal worth, which is continually refreshed in our consciousness by successful action ; while an idle life is deprived in a great part of its hopes by the absence of this. Finally, the neglect of labor for others, or such labor as is felt to be in some way useful to others, brings with it the allied evils,—a want of **certain** not easily drained positive enjoyments of the highest

kind and a further craving for egotistical pleasures which then again leads to satiety."—*Volkmann*. Spencer says: "He to whom life offers earnest work, interspersed with joyous holidays for recreation, will feel no ennui, and will not easily fall into pessimistic views or despair. The work should, therefore, not be made too easy; it should not always be play for the child, although some weak parents may wish this, and some very respected pedagogues may attempt to set it up as a principle." [Humanitarianism views study as a serious business which "accustoms the apprentice by early vigorous action to diligence and industry." Philanthropism wants to render study easy in every way so that the apprentice will take pleasure in the business, and thereby awaken and foster an inclination to work in him.] Industry should furthermore not be confined to too small a space, and practise certain psychical functions to the detriment of others which are neglected; but it should strive after harmonic development of the entire man. It has been said, that at present a broad education and a lively interest in various directions should early be implanted by instruction, as in consequence of the partition of labor, the later profession requires a condensation; and that the youth should already be introduced into the higher ideal world as preparation for a distinct vocation, the cares and worries of which leave little time for this after a while. But in order that this real mental interest may be awakened and fostered, the pupil should not be accustomed to learn and practise new things only, but to arrange what was formerly received, unite it with the present, and thereby gain new combinations as well as view clearly the connection of the separate parts with the whole. In this way, man is often first taught to recognize what corresponds best to his faculties, and towards which he must principally turn his power.

Kern develops the following forms of instruction from the demands mentioned above. Instruction shall (1) arrange and

rectify the conceptional comparisons already belonging to the child; (2) widen the circle of its conception by (a) creating new ideas, (b) forming new relations between those already present. From this follows, (1) the explanatory instruction, first of all, which must prepare the way for the later stages, and form a basis for them. It divides the ideas already existing into their separate parts, and renders them clearer. Herbart thinks it particularly meritorious, but very difficult for the teacher "to find the 'entirely simple,' and dissect his own thoughts into their elements," and thus offer the child clear and comprehensible instruction. (2) The objective and developing instruction.

Amos Comenius required a flawless succession of instructions; also Pestalozzi. The latter thinks we should begin with the easiest, and by successive progress add only a little to what has been fully learned. This produces confidence in the beginning of study, and keeps alive the consciousness of power, so that the children need only be guided, not driven. Like the house on a rock, the little new must be founded on what has formerly been acquired. The house, however, falls if the connection between it and the rocks is moved but a few lines. Jacotot laid great stress in his "ensignment universal" on the following: The representation of the new should be joined to what has been recognized, seen, comprehended; one must learn to comprehend one book, and then refer all that is read, heard, or learned to that; and it will also be understood.

A boy whose entire mental powers are developed and enlarged as much as possible under the same conditions, who is accustomed to compare all that he daily learns with what he knew the day before, and watch whether this comparison will not cause him to discover things which had not been told him; who is continually led to look from one science into another; who is taught to rise as easily from the special to the general as to descend again from the general to the special — that boy

will grow to be a genius, or we cannot grow to be anything in this world. Plato remarked that the discovery of new relations between what has been acquired characterized the truly philosophic faculty, and enabled one to comprehend the general, eternal ideas. In these cases the habitude of concentration and a broad education can well proceed along side of each other.

In the development of the mental powers, the school should not neglect the body, but should foster separate and fine motific functions during the hours for general instruction, and complex and stronger ones outside of these periods. As the child practises and strengthens certain muscle-groups by crawling and walking, gymnastics will strengthen the whole organism. In connection with this, gymnastic excursions and general games as well as private walks of single students, will not only serve as a recreation, but will also strengthen the body. Calisthenics give health and power, advance courage and decision, moral firmness, and strength of character; by the quickness and positiveness of the motions, a mobility of the limbs and physical grace in general are greatly favored, which is, as has been mentioned, of great importance to the entire psychical life. Hence the Greeks justly valued their gymnastics so highly as an important factor in the education of *χαλοχάγανθια*; and Jahn told his contemporaries that gymnastics was a "matter concerning all mankind, which belonged everywhere, where mortal man inhabited the world," just as Fichte calls it a vital part of education.

As far as the hours of instruction are concerned, the organs of speech are practised in a natural and manifold way in speaking, reading, and singing; the hand, in writing and drawing; and the fingers, in playing on instruments, and in needlework. With writing and drawing may be combined a continuance of the habitude for cleanliness and neatness, while the æsthetic sense for regularity and beauty must be awakened and fostered.

Before its entrance into school the child has been accustomed to articulate the sounds of its mother tongue correctly, and to use them correctly ; the school must continue this practice, and complete the verbal instruction in language by written applications.

Rousseau opposes the too early persuasion of children to speak. He thinks the *greatest* harm caused by a hasty attempt to make children speak, *is not*, that our conversations and words have no meaning whatever for them, but that they connect an entirely different meaning with them without our knowing it. This generally produces the surprises which speeches of children cause us, by our giving to them a meaning which the children had not at all connected with them. Lazarus points to the fact that it is specially harmful if the child from the first hears two languages and speaks them itself, for it cannot then enter deeply enough into either. The higher instruction must proceed in the same way with the study of foreign languages ; the rules of grammar are not only to be studied but their use taught and practised by verbal and written exercises. In arithmetic habitude should make the use of the multiplication table, and the advantages of some operations in higher mathematics, the appliance of some particular rules in complicated proofs, a "second nature." As elementary geometry, by the comprehension and construction of the elements of space, at first practises the observing powers of the child, so the natural sciences must primarily give to the soul of the child clear impressions of natural bodies ; afterwards the instruction in natural science should lead by comparison, discrimination, and abstraction to the deduction of natural laws from separate phenomena. Geography no less than natural science should begin with what is most familiar, and proceed to what is foreign and less known. But the place most familiar to the child is its home. On the one hand, the paternal house, with the apple-tree in the garden on which the finches sing, is the first ground

to the environs of which man is bound with bonds of steel, and from which the wider affinities of the family, the community, the race, extend to form by a close union of bonds, the great whole, the nation. On the other hand, as Kern well says: "In the mental life of the boy his home forms the standard by which he measures foreign places. He compares the size of other cities with the size of his native city or those lying near his native home. His ideas of rivers and seas are formed after the streams and ponds of his native land; he places the hills and mountains of his immediate surroundings in thought, one upon the other, to picture to himself the mountains of foreign lands. A winter landscape gives him the first sketch for the picture he makes of the Polar regions. *The general geographical ideas are not gained by explanations such as are collected in the introductions to geographical hand-books, but by abstractions from the separate ideas and conceptions that he has gained by immediate observation.* The boy will understand a map only when he has previously been taught to recognize the points in a cartographic representation of what he has actually seen." Lazarus would, therefore, like to see four maps in every school. 1. A plan of the village or city; 2. the county; 3. the state or country; 4. the grand division of the earth. The child should hunt in the first plan the street, perhaps even the house in which it lives, in order to accustom itself to the cartographic representation. "Then," says Lazarus, "it should familiarize itself with the idea that on the second map, the street can no longer be seen, and the city is only marked by a large, and in the third, by a very small circle, and disappears entirely from the last where the whole state takes up but a very small part. The pupil should also learn that the cities, countries, and nations, even the grand divisions and their inhabitants, are no longer isolated but connected with each other by commerce, so that the products of a European state are consumed in America, India, or China; and *vice versa*, he should furthermore gain

some knowledge of the relations of private property, grounds and houses ; to state property, roads, and land, and water-ways, etc."

Instruction in history, like that in religion, has the special purpose of assisting in the education of the feelings, as it awakens and fosters the sense for the high and ideal as well as for the moral feelings. Ancient history, by the number of sublime examples, by the simplicity and transparency of its relations, which have so often been held up to view, offers the best opportunity for this. But the pupil must even here accustom himself to study, that he may gain insight by inculcation and frequent repetition ; only by a mastery of the material will he gain an insight into the connection of a separate event with a larger period, and into the relationship of this period to the whole previous development ; thus he will recognize in how many ways and in which directions humanity has progressed, on what the present state of culture of his country and all the inhabitants of earth is based, and he will then be able later to form a conception of what its purpose and use really are. The influence of great examples in historical instruction was especially dwelt on by Montaigne. Herbert Spencer thinks that history, as now taught, has only a conventional, that is, no actual, value, as it amounts to a mere accumulation, in the memory, of numbers and dead facts from which no principles for the guidance of actions at the present time could be deducted. He demands in its place a "Natural History of Society," that is, a mention of all those facts which help us to understand the growth and organization process of a nation. He would have taught development, combination, principles, methods, prejudices, or vices of the government ; formation of the church rule, its actions and omissions as well as its relations to the state ; a synopsis of the commercial system ; state of æsthetic culture as evinced by architecture, painting, etc. The child should be taught that these are members of a whole, and how the different phases of culture blend one into the other. This descriptive sociology

should be based on psychology, as it is made up of the actions of separate beings, and can be understood only by the aid of psychology. Lazarus draws attention to the fact that formerly historical instruction included only a history of wars and battles, but that in the lately opened path we have been obliged to go farther, and give more history of the mental culture.

Spencer and Bain especially write against the linguistic-humanistic education of the present time ; they would introduce in its place a scientific education, because it is of more use in practical life. Spencer says that grammar is the philosophy of language, and therefore, as it consists of the abstract, should be taught *last* instead of first, — proceeding from the general principle that the concrete should be taught first, and then the abstract. Spencer and Wyse would not begin in mathematics with the general abstractions of lines and surfaces, but produce them for observation in real objects containing surfaces and lines ; then have them copied, and so on.

CHAPTER VIII.

MORAL HABITS.

CONNECTION BETWEEN INTELLECT AND EMOTION. — LYING.

As both school and life should make morality so much of a habitude and second nature that in single actions no struggle, not even a thought of what is to be done, will be necessary, but that man will immediately do the right and good thing, so school instruction, particularly in the intellectual direction, should habituate to "thinking and speaking" by producing clearness and plainness, decision and firmness, order and coherence in all mental operations. The sense of truth grown into a habit, and the habitual practice of a thorough method of observation and judgment, form the only true and developed theoretical education.

Bad habits injure as much as good ones benefit. Education should, therefore, combine the positive acquirement of good habits and the negative work of not practising bad habits, and prevent the spoiling of the child by not permitting its wishes and wants to be fulfilled the moment they are expressed.

The child should be weaned of all bad peculiarities, passions, and emotions, — laziness, inactivity, fickleness, and weakness of will, quarrelsomeness, and selfishness, vanity, obstinacy, and wilfulness, anger, and revengefulness. [E. M. Arndt places perverseness almost out of the sphere of imputability, by looking upon it as an inborn ailment, resulting from the unfortunate disposition of the parents, or conventional marriages without love.] This can best be done by removing the causes and incentives; the more rarely evil traits find an opportunity of appearing and gaining strength, the more they

will lose in power, just as physical powers grow weaker when they are not practised. Where the removal of the incentives or the setting aside of all opportunities for its expression is impossible, a diversion of the attention of the child to more harmless objects, especially games, will often be very beneficial. In later years a bad inclination is conquered more easily by the introduction of an opposing stronger passion than by mere instruction; for, though we can refute and conquer thoughts by thoughts, they are powerless against feelings as well as against the education of the energy of personal will. It is, however, an exaggeration when Herbert Spencer says: "He who would hope to give a knowledge of geometry by lessons in Latin, or expect to gain practice in drawing by the expressive playing of a sonata, would be considered ready for a lunatic asylum; and yet he would scarcely be more irrational than those who hope to engender better feelings by schooling the mental faculties." Three psychical foundation processes, formerly called "soul-powers," — thinking, feeling, will, — continually influence each other; as the feelings and interest, the wishes and inclinations, exercise their effect on the will and thoughts, so the education of the intelligence is of vast importance for the emotional life. The finer æsthetic moral and religious feelings are only possible with a high development of ideas.

The fostering of a sense of honor and shame may here suppress many evil inclinations. Many qualities which we do not approve have been produced by a former false education, and can easily be removed by avoiding the mistakes of this false method, taking the influences on the organism of nature, the season and time of day, the individual natural disposition, and momentary state of the pupil, into consideration, and making our preparations and rules of conduct accordingly. Furthermore, we should attempt to keep up the good humor of the pupil during every occupation, and to produce a pleasant

change between exertion and recreation during the lesson, between absorption and recollection. In the upper classes of high institutions the pupils must often be broken of the habits of card-playing, and other student-like bearing and actions, with great severity. The fiercest and most obstinate fight, however, which education has to carry on is that against lying, from earliest childhood to the upper classes of gymnasiums and real-schools. Waitz speaks of the evil psychological results of the successful lie: "If, in consequence of the transgression of a command, conscience has been awakened, it will be almost entirely silenced by the successful lie, for the transgression seems obviated thereby, as it has become invisible. Herein is the great danger of the lie: it permits the transgression, which it withdrew from discovery, to appear less great and important, as the feared results thereof are now happily turned away, and in this way it dulls the conscience in general." The pupil should here be made occasionally to feel, with great severity, the severe consequences of lying, beside the reprimanding words about the disgrace of it. Basedow thought lying should be caused to result in misfortune to the children themselves, that by this misfortune they may be diverted therefrom; they should also be accustomed not to feel ashamed of the confession. With half-grown boys and young men, however, who are not habitual liars, it will have a very good effect to teach them to look upon a lie as something terrible, by evidences of confidence, and in this way to brand it silently as dishonorable cowardice, and deserving of shame. Most lies are not the result of an inclination thereto, or of natural villany, but of the effort to withdraw from a momentary difficulty; they are used by children to avoid smaller or larger punishments, without their valuing the truth in the same way in which we must. They look upon language as a supply of means to reach their purpose. But what we should see to is, that when questioned about what took place, they tell the truth.

Jean Paul is not far wrong when he says: "In the first five years our children say no true word and no lying one; they only talk. Their speaking is a loud thinking; but as often one-half of a thought is yes, and the other no, and they (unlike us) utter both, they appear to lie, while they only speak to themselves. Furthermore, they enjoy playing with the art of speech new to them; thus they often speak nonsense, only to listen to their own knowledge of language." Children give their imaginative ideas a reality, and do not know how to distinguish subjective thinking and objective reality; they are involuntary poets. Ruegg says: "Already in the second year of life — more frequently in later ones — the child will drink comfortably from an empty cup, eat out of an empty dish, and gladly share these meals with those around him. It can feed birds which are not present, and not even represented by anything, and it will often grow excited, and sad, or angry, when some one walks over the place and drives the imagined birds away." These phenomena of child-life are also found among uncultivated barbaric races. Tyler tells of a woman in Van Diemen's Land who addressed four or five stones as though they were her distant relatives.

The imaginative conceptions of children appear particularly in their play, and there receive the privileges of reality. A boot-jack, a foot-stool, becomes a horse on which the child rides, a doll which it sings to sleep. If, therefore, there is in their play a certain danger, the inability to distinguish subjective and objective facts, which actual life must remove, this is, nevertheless, of pedagogical importance in forming the imagination and changing passive imagination, which devotes itself more to the impressions received from without and the change of the excited ideas, into active imagination, which creates these conceptions itself, and makes a selection between those offering themselves. If the playthings of children are, however, to accomplish this latter object, they should not consist, as is

mostly the case at present, of already finished copies of real forms and objects, which leave no room for the imagination ; but they should contain rough pieces of wood, building-blocks, etc., which the child must form into something, either imitating objects it has seen, or inventing new ones, and thus exercising his imagination. We may, indeed, often observe that the child will much rather play with the old, roughly-fashioned horse and the shapeless doll, than with elegant new toys, which are very similar to the real objects they represent ; it can make something out of the former, but not out of the latter. Furthermore, the plays of children should not be systematized ; they should give the individual an opportunity for the distinct development of its fancy.

Rousseau also shows that the mania children sometimes have for destroying things does not arise from ill temper, but from the lively desire for action, the wish to change the condition of things ; they sometimes break their toys in consequence of a craving of their imagination to see what is in or behind them. Neither do they lie from natural badness, but allow themselves to be carried away by the interest of their story, and give a reality to suddenly arising conceptions, and thus mingle truth and fiction. Jean Paul tells of a girl who often pictured visions of the Christ-child to him, and told him what it had done and said, while when directly questioned, the girl always spoke the truth. I was myself told by a lady who now writes very good poems, and therefore possesses a lively imagination, that when a child she related stories to her friends and relatives, which she said were dreams of the preceding night, the separate ideas of which, however, did not appear until she began to relate them. This was not a wicked propensity "to bind up upon others," but the pleasure in relating and "composing." And there may be many such young poetesses ; girls have many small stratagems at their command, and are especially strong in "fibbing." Such things should not be condemned as ill-natured lies, but neither

should they be smiled at and permitted to reach their purpose ; boasting and exaggerations by children should be met with solemn silence. Especially the parents themselves and others about the child should not accustom it to lying by making use of social lies. Education should not treat this fancying habit of children too severely as a lie, but gradually break them of it.

CHAPTER IX.

EXTREME HABITUATION.

ILL EFFECTS OF THIS IN GENERAL. — THREE THEORIES CONCERNING THE EMOTIONS. — NECESSITY OF CHANGE IN INSTRUCTION. — PUNISHMENTS. — HIGHER ÆSTHETIC FEELING. — PREJUDICE. — PEDANTRY. — LAW OF RELATIVENESS.

EDUCATION should also prevent the spoiling of children. No one should be accustomed too much, still less entirely, to the use of one function, so that the ability to perform it will not grow into a necessity and the power of free personal decision will not be lost, and it will not be difficult to change or modify it as soon as circumstances should require this. In this regard, if for habitude we make use of its extreme degree, Rousseau is not far wrong when he says: "The only habit which a child should be permitted to acquire is this, that it habituate itself to nothing in particular." "We should not carry it oftener on one arm than on the other; not accustom it to give one hand in preference to the other or use it oftener; always to eat, sleep, and be active at the same hour, or to be able to remain alone neither by day nor night. Help the child from afar to assume the rule of personal liberty and the use of its power by leaving its natural habits to the body, by bringing the child to be always master of itself and always to follow only its own will as soon as it shall have one." But this too close accustoming to one habit is particularly hurtful to the emotional life. It is true, as Rousseau and many others have likewise taught, that in educational matters one age shall not be sacrificed to a following one, nor its pleasures curtailed, but each should keep its joy, and the

child should retain cheerfulness and joy in life and labor notwithstanding all exertion. Lazarus therefore looks upon every labor imposed as a punishment, as a pedagogical mistake, since it spoils the child's pleasure in work in general. Every act of the pedagogue should be not only a means for the better accomplishment of the following one, nor alone self-sufficient, but both together. The child should be given time for recreation and play, free choice in the variety of the latter, and by this means its pleasure in play. Lazarus here shows a fault of the kindergarten system, which otherwise has so many good points. It does not let the child have a free choice of the play, but forces it to join in, though it be only by a stern glance. The adult should mix as little as possible with the play of the child, and leave it mostly to its own resources and ideas. But it should not be accustomed too much to material enjoyments, that is, spoiled. It should find appreciation for good work, but it should not be rewarded by sensual joys, or compensated for every exertion; it should learn by-and-by to look upon the feeling of satisfaction which follows every labor that has been well done, as the best and only reward. Not until education has found an opportunity of drawing the pupil's attention to his better self by deeply impressive approval (not exactly praise) will it work well. Censure will not find willing ears until it has ceased to stand alone as a minus quantity; let it threaten to demolish, in part, approval already gained, and the effect will be much greater. Thus, he only will feel the pressure of self-reproach who has gained some self-respect, and is afraid of losing it. The pupil who is only censured will grow ill-humored when the teacher will not take him as he is. Fenelon, the tutor of the princes of France, only succeeded in curing his princely pupil of his ugly traits by not withholding approval of his good qualities, and encouraging him in their exercise. Fenelon justly observed that the tutor should attempt less to gain the fear than the love of his pupils, as man will

easily adopt the manners and thoughts of those he loves. Time devoted to play should not be offered too often and in too large quantities. Herbart says it requires but little to please children in various ways when great temperance is the daily habit, and Lazarus truly remarks: "*Man should be accustomed to enjoyment of life, but not to a life of enjoyment.*" The spoiling of a child by frequent, unnecessary pleasures, by artificial enjoyments which do not include somewhat of labor and practice, is detrimental, because the dulness of sensitive feeling which is engendered thereby does away with many small aids to discipline, which can be used with good result by children not thus spoiled. Very early the crying of children should not be hushed every time by all sorts of quieting measures and small pleasures, only that the mother and all others present may not be disturbed. Rousseau says: "So long as the child cries I do not go to it at all, but I return to it the moment it ceases. Soon it will call me by being quiet, or perhaps uttering only a single cry." Children determine the meaning of their cries by their visible effects; they have no other test. A child will rarely cry if it is alone, no matter how severely it has hurt itself, unless it hopes to be heard. If the child sees that we are greatly worried about it, and console and pity it, it will deem itself lost; but if we make no great ado about it, it will soon forget the pain. Wilfulness is often trained into older children by granting that which should be denied, through weakness, or a desire to have rest from the pleadings of the child.

Thus have we arrived at the last stage of our investigation, which concerns the injuriousness of habituation when carried to the extreme. We saw that not only bad habits, but all which were carried to the extreme, have an injurious effect, especially on the emotions. This latter point we will look at a little closer.

Feeling is "the manner in which consciousness or self-con-

sciousness every moment reacts on what is taking place within." The conception itself always expresses only the immediate reciprocal effect of a connection of consciousness with the external world. The emotions, however, picture the manner in which the consciousness, by reason of its entire condition, its lasting and momentary inclinations, receives the reciprocal effect. . . . Wundt says: "Every conception is in a certain relation to the whole psychical system in which it appears, and this relation is expressed in the accompanying emotion. We can, in general, distinguish three theories concerning the emotions, among which there are, however, manifold connections and mediations: 1. The emotions are a special action of the faculty of perception, a dark perceptive power. 2. The emotions proceed from a reciprocal action of the conceptions. 3. The emotions are the condition in which the soul is placed by its conceptions and perceptions." This view is very ancient, and can be found expressed in the old theory of the soul's powers. A distinct peculiarity of emotional life is that it continually vibrates between the opposites of pleasure and displeasure, and is heightened in intensity by the contrast. A person who has been sick feels more comfort on the return of his health than one who rejoices in steady good health. Preceding sorrow causes joy, and *vice versa*, former happiness, present misfortune, and pain, to be felt far more keenly. The hatred which develops from the change of former love is the most severe. Campe explains the phenomena, that things which formerly impressed us with decided displeasure, then grew bearable and indifferent, finally even pleasant, or that what was formerly pleasant may gradually have an unpleasant effect, because the contrast, which was very strong in the beginning, grows weaker after some time. As an example of the former case he mentions that galley-slaves do not feel their terrible fate as much after ten years as on the first day, and in proof of the latter he cites Shakespeare's, "If the entire year consisted of

holy play-days, celebrations would be as noxious as labor." Pleasures, of whatever kind, are subject to the motto, "*variatio delectat*." Sensual, as well as higher emotions, require a change, if they shall continue in their original strength. If this change is not offered, the reaction of consciousness on the inner action, the emotion, will grow weaker in proportion to the frequency of its repetition in a similar manner; and will finally change to the exact opposite; we lose the interest in things which always bring us the same impressions; they grow indifferent, tiresome, and finally excite disgust and repugnance; the highest joy and the strongest passion are weakened by time, and we gradually grow accustomed to the pain which was at first very severe.

The pedagogue must bear this fact in mind. The pupil should be granted a change, not only from exertion to recreation, "*concentration and recollection*," but also in the manner of his recreation and play as well as the mode of his exertion. The time devoted to a certain subject of instruction, a single work, cannot be abnormally lengthened. The pupil should not do now this, now that, and thus weaken his powers, but neither should the instruction and the repetition be made tiresome to him; his interest must be continually kept alive by an illumination of different points of the same subject. "To be tiresome is the greatest crime of the instructor."

Every conception has, so to say, a maximum of clearness for each separate person; if we attempt to retain it in consciousness long after it has reached this point, we must use great exertion, and may not succeed after all. On the contrary, a condition will be produced which permits just those conceptions contrasting to the former ones to arise.

The same is shown in the mental life of nations and mankind. When an idea has reached the highest point of its power, and rules the separate minds, taking up a great deal of their attention, the antithetical one will gradually appear, grow in strength and develop its greatest power when the first has

decayed and outlived itself. In after ages it may again appear. K. Schmid, in speaking of the difference between modern enlightenment and that of former times, remarks: "*One extreme calls forth the other.*" The religious mental powers draw too firmly and too much in the same direction during the period of the abstract theological view of the world and education; they awaken the similarly one-sided thinking powers, and these now assume the judgment-seat to inquire how they may be justified by the former existence of science, and what has been historically developed, and is actually present in general. The mind criticises the existing religion, and before this criticism the positive truths of the latter are dissolved into general intellectual expressions."

Habit dulls the feeling for rewards, and still more that for punishments; the teacher should therefore see that he does not use too strict measures in the beginning, but according to circumstances, make use of admonitions, threats, and mild reproofs, and only when these are of no avail employ sterner punishments to insure a gradation to himself. Waitz says: "We should never use a stronger measure when we can get along with a weaker one." But he advises severe measures from the beginning when it is intended to obviate the bad results of a former too lenient training.

Physical punishments were particularly in vogue before the Reformation. Thomas Platter, in his autobiography, gives a sad description of this fact. Even some time after the Reformation the motto "He who loves his child should punish it" was generally followed. In the last century, when the philanthropists who received their name from their desire to make instruction easy for the pupils, arose, the schoolmaster Häuberle in a small city of Swabia made a note of the punishments he had inflicted during an activity of 52 years. He gave 911,527 strokes with a cane, 124,010 cuts with a rattan, 20,989 cuts on fingers and hands with the ruler, 136,715 strokes with his hand,

10,235 strokes on the mouth, 7,905 boxes on the ear, 1,115,800 punches of the head, and 22,763 extras with Bible, catechism, hymn-book, and grammar; 777 times he had boys kneel on peas, and 613 times on three-cornered pieces of wood; 5,001 had to wear the dunce-cap, and 1,707 hold up the rattan; 800,000 of the cuts with the cane were given for Latin vocables, and 76,000 of the rattan strokes for biblical texts and verses from the hymnal. He made use of about 3,000 invectives and words of abuse, of which his native tongue supplied about two-thirds, and one-third were due to his own invention. On the other hand, we have the words of "Walther von der Vogelweide," "No one can train the child with the rod"; and Amos Comenius's remark, "Blows and strokes have not the power to bring love for the sciences into the heads of children, but may often cause a disgust for them." Bain says: "Pain is a waste of brain power, while the work of the student requires the highest form of this power. Whatever the punishment accomplishes is at the cost of a great loss of power, which loss increases when the punishment is looked upon with actual fear. Every one has perhaps met with cases in which a pupil was rendered wholly unfit to finish the given work by fear."

The moral feeling, the conscience, is often like the emotions and the feelings of honor weakened by habit, as the latter causes greater negligence in the examination of motives. The higher æsthetic feeling needs change. Works of art must be viewed from various points, if the enjoyment of them is to remain the same. Religious instruction is destined to offer man the highest things and touch the mind in all its depths: to gain this the teacher should take into consideration not only the influence of the hours of the day, and the disposition of the pupil, and therefore choose a proper time when the mental functions have not grown weary by many preceding hours of study; but the hours of instruction should not occur too frequently. The instruction in religion should compare to

the other lessons as Sunday to the week days. Teacher and pupil must approach it with a solemn feeling. The feeling of solemnity and elevation can, however, at least with children, only be deep and continue in the same intensity for some time, when its repetition does not take place too often. Nothing can affect us with solemnity which has in any way become a habit ; not every day can be a Sabbath ; only the unusual retains the power of taking entire possession of the soul. Lessing says in one of his works : "Only that will impress us as miraculous, a conception of which appears but rarely in the chain of our ideas. On a diligent student of the Bible the greatest miracle which is described in the Scriptures will no longer make the same impression as it did the first time he heard or read it. . . . The miracle remains the same, but our frame of mind changes when we think it over too often." This is not contradictory to what has been said before : the adult will find the more supports for his religious belief, the oftener he has experienced the love, wisdom, and omnipotence of his Creator in his own life.

The new physiologic-psychology has shown the importance of the so-called psycho-physical law. This shows that the strength of the emotion does not increase in the same measure as the external irritation, but that mathematically expressed, the emotions grow like the logarithms when the irritations increase in their intensity like the figures, or that the emotion grows like the logarithm of the irritation. This law is of great importance not only for the impressions of the senses, but also for the emotions and the will. Already in the last century, Daniel Bernouille and Laplace remarked that the inner feeling of happiness, which Laplace calls "fortune morale," is proportional to the logarithm of external possessions, "fortune physique," or in other words, that the satisfaction grows in arithmetical progression, when the possession is increased in geometrical progression ; viz., a man who owns \$1,000 and gains \$100 more has the same feeling of satisfaction which another who

owns only \$100 and gains \$10 more, feels. If this feeling is not retained by a corresponding increase in the same intensity, or strengthened, a craving for it will grow to a strong power and seek satisfaction. In the same way in which this is the case with the external material possessions it will also happen with ambition, the mental possession we have in the souls of others (the "enlarging of self-confidence in and through others"). The craving for honor and renown grows in increasing degrees the more man has already accomplished.

In the description of characters such as Napoleon I., too little regard is often paid to the fact that these phenomena are based on a psychological law. A man who rose so high must find it difficult, even impossible, to control the unmeasured growth of the craving for honor and ambition. In the same way, his contempt of mankind which is so often mentioned, is explained to a large degree by his descent, his disposition as a cold and abstract-thinking mathematician; furthermore, by the time of his rising, the French Revolution; and finally, by his whole life, which, on innumerable battle-fields, hardened him, and rendered him insensible to the sufferings of man. Even Spencer, although he particularly says that the emotions and hate prevent correct judgment, and gives a chapter the special heading "The Prejudices of Patriotism," does not seem to be free from such prejudices when he pictures Napoleon I. as dark as he does in his "Introduction to the Study of Sociology."

Doubtless these phenomena deserve the attention of the pedagogue. The wishes of the pupils are to be turned aside in many ways, and diversion should be offered them by a change of the conceptions, so that the desire bound to a narrow space will not grow with too great rapidity. Kern says: "Every conception may be followed by a desire. The more change there is in the world of ideas, the more will one desire supplant another; the more the circle of thoughts is widened, the larger

also will be the range of desire ; and the oftener a certain desire returns, the more foundation will the idea with which it is connected gain, and the stronger will it therefore grow. If it is not suppressed by another desire or by conceptions which are more powerful than those on which it depends, it will not cease until it has been satisfied."

The child should, therefore, not be spoiled by material enjoyments, because his wishes widen and grow in the same proportion in which they are satisfied. The better pupils should early be protected against immeasurable ambition and egotism. As oft-repeated desires and strong passions grow to an immense strength, and can, as is well known, "put things *into* man's head," so the conceptions connected with them will grow to "fixed ideas" which continually increase in possession of the domain of consciousness, and finally lead to complete insanity.

Aside from these pathological phenomena every extreme habituation has a very harmful influence on the intellectual life by narrowing the circle of conceptions, allowing man to grow rusty in the old relations and views, and making a pedant of him. Firm, rigid lines are formed wherever a small number of conceptions return uniformly in greater degrees of clearness. Hence arises that stiff pedantry which threatens schoolmen, chancery clerks, etc., especially when aided by the melancholy or phlegmatic temperament found here quite as often as it is rare among artists and practitioners of every kind, whose vocations press them on to ever-new combinations. Women are less liable to pedantry than men.

The union of the conceptions of words, and the designations of objects, is especially close, so that to many it seems identical. For those who know only their mother tongue it must seem almost incomprehensible how the object which is not only *called* bread, but actually *is* bread, can be called differently in another language. The habits of thought, which otherwise, as artifices, are of great advantage to the rapidity of the intellectual

functions, can also lead to extreme one-sidedness and cause manifold disappointments. Thus the mathematician will sometimes treat everything after the method of his science. "In handling questions that the concrete sciences offer, he recognizes only a few of the factors, quietly gives these a positiveness which they do not possess, and proceeds in a mathematical way by drawing positive decisions from these premises as though they were specific and sufficient." — *Herbert Spencer*.

He who never left his native home, who never had an opportunity of recognizing "many men's minds," remains bound in the conceptional range of his parents and ancestors. Among the higher classes the views concerning social rank which are developed by inheritance, education, condition, and habit, grow to rank-prejudices if the pupil is not early enough acquainted with a wider outlook. Not only instruction, but even stern measures of discipline, are sometimes needed to conquer such rank-prejudices. Bain investigates the "Law of Relativeness," which is of value to the emotions (effect of contrast) as well as to the mind, and the most distinct characteristic feature of which is the dependence of the intensity of consciousness on the grade of transitions from one impression to another. While Hobbs remarks, "It is *almost* immaterial to a person whether he always perceives the same object or nothing," Bain thinks he should have said *wholly*, for it is a well-known fact that an unchanged impression on our senses, if lasting any length of time, has the same influence as none at all. "A change of the impression," he says, "is necessary if we shall grow conscious of it." The feeling of heat is no absolute, independent, self-subsisting condition of the mind, but the consequence of a transition from cold; the perception of light is dependent on a transition from darkness or shade into light. To use a common example, a watch-maker is not conscious of the uninterrupted ticking of his watches; but if they suddenly all stopped, he would become aware of the pause. In exertions of mind and body

the ability is greatest immediately after the condition of rest. The power is at its height when the renewed nerves start afresh, and sinks the more we approach the point of exhaustion.

From this hypothesis we may picture to ourselves that, when all the parts of the brain are in perfect equilibrium and constantly remain on the same height, when none begin to grow stronger or weaker, consciousness or feeling will be zero, the mind will be at rest. A disturbance of this condition awakens consciousness for a time; a further interruption gives it a new impulse, and so on: besides, the variety of the impressions influencing the mind in a waking condition will prevent perfect equilibrium from again taking place. In unison with this is the nature of the mind, so rich in changes; the line of consciousness may be more easily likened to a series of explosions than a quiet, steady stream. The fact that we generally retain the impression of rest is only due to the excitement's being so unimportant and temperate; as soon as the intensity of feeling increases, the explosive character becomes very prominent.

The mind begins to work by distinguishing. The consciousness of difference is the beginning of every mental activity. *To receive a new impression is to notice changes.* Man has a power of distinguishing more or less fineness in sight, sounds, smell, taste, and touch impressions. Here is the deepest cause of the inequality in intellectual powers, as well as the variety in the directions of taste. The fineness and tenderness in the feeling of difference is the measure for the variety and number of our first impressions, and therefore of our treasured memories. A too long continuation of the same impression is followed by a weakening of consciousness; and monotony, as is well known, has a stupefying effect. Everything new and strange will awaken our attention and our interest more than the habitual impressions which we received from the old accustomed conditions; the logical thinking-power and energy are hereby challenged to activity and fired on. Inversely logical processes of thought

which took place frequently grow to associated ones in which the will is less active. Actions which were formerly performed with the conscious will are gradually transformed by habit into reflex motions, become fixed, and are in this form transmitted as dispositions to later generations. Habit is its own worst enemy, because old habits oppose the introduction of new ones. Extreme habituation also has a detrimental effect on the will-activity, because it permits it to come forward less, and changes all thoughts and actions into mechanical ones, robs man of his free self-determination, and makes a slave of him. A servile education can, in the most favorable cases, only create a series of good, steady habits, which themselves, aside from the fact that *they are only means for morality and not this itself*, leave men in the lurch in extraordinary cases and a prey to perplexing indecision.

Now, undoubtedly, mechanism in thought and action is not to be absolutely rejected. Power is saved by many mechanically executed functions which may be of use in other directions. Wundt therefore describes it as an important aid which the associations give to the logical thought-processes performed with conscious will, by forming on the one hand the preparation for apperceptive union (what is uniformly united in time and space will with pre-eminent ease also be united in the function of judgment), and on the other hand by taking the place of these processes after they have repeatedly happened. Furthermore, certain purposes are reached by mechanism as well as by the conscious will-action; yes, sometimes more easily and surely, because reflection does not disturb them by coming between, causing delay, or leading astray by mistakes. Finally, man is often brought to himself and led to conscious, energetic thought and action by labors which he at first performed mechanically. Educators and teachers should, however, favor mere mechanism as little in all other psycho-physical processes as in the thoughtless memorizing of that which the pupil has not

understood and comprehended. Lazarus points out that even in teaching writing and reading, all that is written or read should contain nothing incomprehensible to the child. He thinks, "No conception should enter the head that is not understood." Roschow writes, "Only the comprehension of what is taught renders instruction useful." Daily experience teaches us that we generally think least about what we formerly adopted mechanically; that, therefore, what is thoughtlessly acquired in most cases receives no further thought.

CHAPTER X.

HABIT AND FREE WILL.

GENIUS. — INSANITY.

HAS not all education this one purpose, that the pupil shall do consciously, and with free self-decision, what moral instruction impresses upon him, what in the beginning, however, he does only by compulsion from parents or teachers, as well as from habit? Education should create a will which harmonizes with the insight determined by the moral ideas. The intelligence formed by instruction should not be an idle one, but should pass into the will, and therefore education does not want a *will* so much as a *will proceeding from the moral intelligence*. "Education must enable the youth to enjoy the liberty of self-decision." Spencer demands the personal action of the pupil in contrast to mere reproductive reception during the time of instruction; the child itself shall learn to observe. Montaigne and Rousseau demanded, above all, independent judgment of the pupil. The former said: "The bees gather sweets from the flowers here and there, but they make honey thereof which is entirely their own; it is neither thyme nor gentian. In the same way the pupil will change and transform that which he borrows from others, and make therefrom a work wholly his own. The man shall not retain the *jurare in verba magistri* as the main principles of his thoughts and quiet himself with the *ipse dixit*, but shall understand how to form an independent judgment for himself!" It is true the animal by aid of its instinct easily and surely performs useful actions, and the man proceeding in a mere mechanical way often reaches the

goal more quickly than he who attempts to gain a perfect comprehension of the causes and consequences of his actions by reflections. It may be true, for example, that the laborer would not perform his labor better and quicker than he now does if he knew exactly how his psycho-physical organism, his nerves, muscles, etc., were acting, what value his action has for mankind in general, and the state in particular and what place the results of his labor occupy in the commerce of the world, but it is simply more worthy of a man to know why, how, and wherefore he thinks and does this, or allows that process to go on. Most persons will here perhaps be reminded of Schiller's words:—

“ We must despise the idle man
Who never thinks of how he deals;
For this is still what graces man,
For which alone his mind expands,
That in his inmost heart he feels
What he created with his hands.”

The conceptions of the cause, the means, and the reason, need not be clear in the mind during the function itself, and man need not render to himself an account of every minute particular of his actions every moment of his life. After the plan has once been thoroughly considered and adopted, reflection should no longer interrupt the action. But these conceptions should always remain on the outskirts of consciousness and be ready to be raised to clear consciousness on any inducement; while we use the mechanism of the body and the mental processes to reach our object quickly and easily.

If, now, we finally consider the culmination of all human mental action, Genius, we shall find that here also habitude may have fatal results. If the practitioner needs in every action ever new combinations and different ways of employing the acquired knowledge which habit does not give him, Genius is also distinguished by the rapid and unusual combination of the various elements of the mental matter which outer and inner

experience have given it. All clever remarks and humor, as well as their results, depend on the newness and the uncommonness of the union of separate elements of experience. The difference between these and the action of genius is, however, determined by the lower or higher degree of value which they have for things universally, the progress of culture in a nation, and mankind generally. It is the newness and originality of such combinations which distinguish the mentally conspicuous from the "en gross" men who habitually form only the same or slightly modified combinations as education and life have taught them and as the general custom seems to be. "Thoughts live very close together" in the minds of genius and can easily enter into combination. And this ease in changing and combining is prevented by habit, which appoints to every conception its distinct dwelling-place in a larger community.

Where conceptions are directed by lines to certain places and courses, that free mobility on which their combination into new forms rests is excluded. The mental or habitual firmness of the lines destroys the fluidity which lends its charm to the rising conceptions. To this may be added, that lines which are frequently reproduced unchanged, finally lead their links past us so rapidly that an investigation of their condition is no longer possible; and we are as much at a loss to comprehend the action after it has passed by as before it began. The close blending of lines of this order almost deprives them of their individual character, and renders them similar to impressions of the whole, in which all is simultaneously seen, or heard, or felt.

And yet education can do a great deal for genius; and the formation of its habits is of the utmost importance.

Comenius says: "Genius is most in need of discipline and education, for it is like a fertile soil, which, unnurtured and uncared for, bears the most weeds, the most thorns."

We evidently go too far when we deny to education all good influence on the minds of genius, as Christman declares; gen-

iuses generally have teachers who possess no genius themselves ; or, as Lichtenberg says : " If education succeeded in wholly forming the children under its influence, we should soon have no more great men." It is true, that the disposition which education is unable to create must have existed before, and that by aid of this the pupil may outstrip his master ; but it is likewise known that a want of good education causes the finest talents to become weak, and is the cause of the misfortune of so many geniuses.

Education accustoms the genius to diligence, by which alone he may hope to develop the powers slumbering within him ; it teaches him to beware of scattering his powers, and to concentrate his actions in those fields to which his eminent talents particularly point ; but it does not confine him to these exclusively, and gives him a manifold interest ; it forms in him the disposition for order and regularity, " the serious guidance of life." In consequence of the rapid " tempo of thinking," the easy mobility of the conceptions, the genius is often in danger of too great mental variability and distraction, of too rapid changes in the motives for actions, and in these themselves, in feelings and wishes whereby a moral character is rendered more difficult of attainment, sometimes even impossible.

An attempt to bring the fundamental disposition into a steady relation with the separate feelings and passing moods leads to the contrast between comfortable and ingenious natures. The character of cheerfulness is the result of a firm, almost anxious hold on a certain fundamental disposition, which generally contains a medium share of seriousness and humor, and all the local tones of the separate feelings and moods are pitched according to this fundamental tone ; while in ingenious natures, the fundamental disposition seems to be abandoned to the power of momentary humor and even strong single feelings. The one makes age comfortable or peevish ; the other explains the flood and ebb tide of joy great as the heavens, and grief

dark as the grave in youthfully animated hearts. A cheerful, comfortable disposition impresses us with a certain cordiality, while the variability of genius appears youthful; both are wanting in reverence for separate feelings, and when combined with maturity, they appear almost abnormal. In so far as good nature consists in keeping the disposition pure and clear, it forms the complement to a character bent on the purity of demeanor; the restlessness of genius finds more than a mere complement in a life ruled by the passions.

It should be remembered that the development and retention of a moral character — when it has not by education from early youth become a habit — requires effort, but that geniuses use their greatest power in intellectual labor. Enhanced mental efforts cause certain reactions which explain many things. — *Shakespeare's and Fielding's Wild Tavern Life. Jurgen and Bona Meyer.*

Education enables the youth to control himself, and by habit to acquire firm principles for the basis of his character. The man of conspicuous mental capacity is destined to create something new, and raise education generally to a higher level; he is, therefore, in advance of his contemporaries, and often not understood by them. The following expression of Lessing's is well known: "To be considered a great mind for half a century after one's death is but a poor proof that such is actually the case; but to be thought so through centuries is a proof not to be gainsaid. The contrary is likewise true. That a writer is not read by his contemporaries and their grandchildren is a misfortune, but not yet a proof against his worth; only when the grandchildren of the grandchildren should never care to read his works, then is it true that he never deserved to be read."

The consciousness of a man's worth comes into conflict with external circumstances which do not offer him the necessary encouragement or the opportunity to carry out his reform ideas;

thus great irritation is apt to be engendered against any contradiction he may meet with ; also undue exaltation and an over-valuing of his own personal worth.

Rein, in speaking of Pestalozzi, remarks that the fault of all autodidactics has ever been one-sidedness, and an over-valuing of that, which left to their own resources, they discovered with great labor ; stern misfortunes, together with the consciousness of pure will, render a rough tone more pardonable ; great celebrity and praise from every side are apt to make men irritable towards rare contradiction. *Genius will easily* adopt the tendency to bitterness and variance with life in general, which feeling only very rarely rises to the nature of humor. The latter has incorrectly been termed the height of true genius, and cultivated as such, while in reality it is only a decay, an arrest of true genius, and represents only a passing stage within it.

In the rash impulsiveness of youth a genius will attempt to break through the bounds set him, and thoughtlessly battle against necessity ; where he is deprived of the opportunity to do this, the discord within him leads to bitterness, despair, yes, even to an over-clouding of the mind, insanity.

The similarity between genius and insanity has often been pointed out : *les extremes se touchent* ; the mentally deranged and the sick person are in nearly related conditions.

Maudsley studied not only the similarity between genius and insanity, as well as other eccentric dispositions, but also the relations in which they appear to each other in heredity. Strange to say, a deeper investigation will bring the result that original inspirations, decided evidences of a talent, or even of genius, often proceed from individuals who come from a family in which there was a certain predisposition to insanity. Such persons can take up and develop additional ideas which a sober brain would never have found, and by the aid of this side-light discover unsuspected relations. The person endowed with a temperament disposed to insanity may, according to

circumstances, either grow actually insane or give to the world new ideas and deeds. We may observe that one member of a family, because he entered a congenial field of labor, will go through life undisturbed, while another member of the same family falls into hopeless insanity because he is less fortunately placed. It frequently happens that some members of a family are actually insane, while others excel by an eccentric character or are conspicuous for some time by an excited restless demeanor, which afterwards changes into insanity. . . . The disposition to insanity is led to break forth into actual mental derangement by physical pain, the pressure of external conditions, and mental excitement of any kind. Maudsley even points out the close relation between a disposition for insanity and an inclination towards crime; he shows that criminals are often descended from families in which insanity or some other form of neurosis is at home, and that there have been cases in which one member of a family became insane while another member grew into a spendthrift, a worthless fellow, yes, even a criminal. He looks upon crime in such cases as a kind of *fontanelle* by which the unhealthy inclinations of the criminal find vent: such individuals would become insane if they did not turn criminals, and they only keep free of insanity by becoming criminals.

A proper and good education is the only bulwark against such dangers; it gives the genius a feeling of respect for authority and reigning circumstances; it teaches him to submit to necessity where the strife cannot benefit mankind, but will only bring himself unmeasured harm; it enables him to remain passive, but also to become active the moment his action may be useful. By preparing the way for self-discipline it gives him the greatest aid in the strife with himself and life in general, retains the clearness and health of his thoughts, and develops the morality of his character.

Maudsley and many others call our attention to the following fact. The education of the intelligence and the character may

conquer the inherited predisposition for insanity, and prevent crimes from taking place, by training and disciplining the "insane temper." . . . If we carefully give to the will the power of ruling our thoughts and feelings, we create within ourselves a power which assures us of continued mental health. The power of the will will even aid frequently in remedying a disturbance but just begun. Returning health in mental disease is always announced by an increase of will-power, and a recovery of complete health is possible when the derangement is not caused by organic changes, but is only functional.

Concerning the relation of separate ingenious actions to the mental activity of the masses, Lazarus is no doubt right when he says: "Ingenious tact finds many things that science seeks in vain. But the time has come, and is well prepared, for an advance from ingenious tact to methodical discipline, and a transformation of the sporadic labors of genius into the work of a special, conscious, continuing, and uniformly rising science. . . . Though the genius retain his exclusive position, he cannot procure a general currency for his ideas unless he finds men who will take the trouble to accustom the present and future generations to the reception and development of these ideas."

The true greatness of prominent men does not consist in their being praised and flattered by their contemporaries and posterity, in their celebrated name resounding through the land, but in the fact that future generations — particularly the educated classes — *receive their ideas and make them their own.*

The man of great mental capacity, prominent above others, scatters his thoughts abroad ; but it is the business of the educators and teachers to lighten the soil and prepare the ground, that the seed of ideas may be received and bear good fruit. Beside the restlessly progressive power creating new things must be another which protects it from excesses, keeps it in bounds, and by quiet steady labor lets mankind in general recognize the value of the good the former has created, without *entirely overthrowing the existing order of things.*

Many a one who expressed new and original ideas lacked the power of realizing them and practically applying the rules he himself gave (Rousseau, Pestalozzi, etc.). Genius in art and science is little adapted to practical business. Though the poet J. Von Zedlitz claims that nothing great is accomplished in this world without enthusiasm, the words of Jean Paul, who says, "Only the whole is created by enthusiasm; its parts are developed by calm thought," are no less true! Reform ideas will find a willing reception only when genius does not want practical men who realize his thoughts in calm, steady action; when a restraining and calm power accompanies the one regardlessly assaulting existing affairs. Thus the impetuous Luther found a true friend and assistant in the calm Melancthon, who, with his usual clearness, perspicuity, and knowledge, gave the world-moving ideas of the Reformation their dogmatic expression, and in theology as well as philosophy became the "teacher of Germany."

Maudsley truly remarks that "the ideal world of man is ruled by antagonistic powers as well as the course appointed to the planets: *A centrifugal or revolutionary power gives the expansive impulse to new ideas, a centripetal or conservative power appears in the restraining habit, and the result of these contrasts determines the direction in which the mental development progresses.*"

When the formation of habits is used in the proper way, if it is not carried to the extreme by contracting the limits of conceptions favoring mere mechanism, and weakening the emotions, but teaches how the danger of distraction may be avoided, a concentration of power united with varied and manifold interests be acquired, how man may retain his free self-decision and develop his character, how the feeling of happiness is increased by the regularity of work and recreation, — it will be the main aid of education in giving man or mankind "what he might have developed from within himself more easily and quickly."

APPENDIX.



NOTE 1.

PYTHAGORAS knew that if the strings of a musical instrument were of the same quality, of equal tension, but of unequal length, their lengths must be in the proportion of 1 : 2, of 2 : 3, or 3 : 4, in order to produce the perfect consonances of octave, treble, or quarte. In modern times, the relations 4 : 5 and 5 : 6 have been added, but without the ability of stating the reason why just these proportions bring forth these consonances. Musicians as well as philosophers and physicists have mostly rested content with the answer, that the human soul could, in some way unknown to us, find out the numerical relations of sound-vibrations, and that it felt an especial pleasure in viewing simple and easily scanned relations. The excellent work of Helmholtz brought the explanation: The physiologic-physical investigation shows that two sounds can only be felt simultaneously in the ear without disturbing each other in their outflow if they stand in certain positive interval-relations one to the other, — the well-known intervals of the musical consonances. Helmholtz further showed that the upper tones appear far more frequently, and are of greater importance than was hitherto believed, and that they actually determine the shade of the sound of various instruments.

NOTE 2.

Periodical vibrations of the air, for instance, amounting from 16 to 36,000 in a second, affect us as sound, and by aid of our

external organs of hearing and our nerves we perceive a musical sound if the vibrations are regular; a noise, if irregular; and, according as the vibrations are slow or more rapid, we perceive deep or high tones.

Vibrations of the air, averaging 450-785 billions a second, which strike our organ of vision, are perceived as light or color: red, 450; yellow, 526; green, 589; blue, 640; indigo, 722; violet, according to the number of vibrations. Between the impressions caused by sound and by light are those produced by the changes of temperature. They begin far above the upper limit of the former, and extend beyond the lower limit of the latter.

NOTE 3.

Plateau counts the average length of sight-sensations as 32-35 seconds, and claims that it increases in direct proportion with the intensity of the impression, for which reason the retinal-after-images of brightly illuminated objects are of comparatively long duration. This continuance of the sensation causes two impressions, which follow each other very rapidly, to intermingle with each other, and to be perceived as a single, longer sensation,—thus a glowing coal, swinging on a cord in a circle will appear as a fiery ring. A revolving disc on which the colors of the spectrum are painted will appear white because all colors intermingle, and the resulting impression is the simple white.

Lazarus says: "For several minutes after the first impression has passed, a copy of the same color will remain; when the sensation, however, lasts longer, so that the nerves grow tired, a complementary retinal-after-image will follow the one of like color (complementary colors are those which, when mixed in due proportion, produce white); as, red and greenish-blue, orange and blue, yellow and indigo, greenish-yellow and violet. With red impressions, the secondary picture is blue-green; for *violet*, greenish-yellow; for green, purple; for white light, it is

black, while on the other hand, a black object on light ground produces a white picture. The complementary retinal-after-image is either positive, when it is seen in comparatively equal or even greater brightness than the original impression, or negative, when it is seen with less brightness ; the latter is the more general."

NOTE 4.

The example of a swinging stick is often used in explaining this. If in a dark room we could swing a stick to and fro at any rate we pleased, we should find that at first, with slow motion, we noticed no effect, then perhaps a draft; if the motion were quickened to about 20 vibrations a second, we should hear a deep tone, which, up to 36,000 vibrations, would become higher and higher, going through the entire scale. *Then, for a time we would receive no impressions*; later still, warmth; when the celerity reached 450 billion vibrations in a second, light, and one after another the different spectral colors, — red, orange, yellow, green, blue, indigo, and violet. The rays beyond violet, which were first discovered by their chemical action, are not visible generally, or at least affect our eye much less than the others; they can, however, be rendered visible in an artificial way by the exclusion of all other light. — *Helmholtz*.

The rays at the other end of the spectrum, usually invisible, may be perceived by the exclusion of the brighter, generally visible light. At the red end, in fact, the sun-spectrum reaches farther than can be discerned by the eye. Up to the present time it has only been possible to make these over-red rays perceivable by their heat-effect; and they have therefore been termed dark-heat rays.

Electricity and magnetism, finally, are, according to the view of highly celebrated naturalists of the present day, also vibratory motions of great velocity. (Electricity, longitudinal; magnetism, revolving; while light is a transverse mode of motion.)

The difference between the transverse motion of light and the longitudinal vibrations of electricity would also explain the fact why transparent objects, which allow rays of light to pass through, do not transmit electricity; and inversely, why the best conductors of electricity are opaque. We possess no separate sense by which we can feel the electric and magnetic phenomena separately. Electricity is perceived by man as light or heat; as soon as led through bodies, it changes into the motions of light or heat.

NOTE 5.

With the lowest Protozoics, light very likely acts only as heat. On the other hand, we must be in doubt whether some formations connected with the organs of touch in animals are to be reckoned with the usual organs of touch, or whether they transmit special sense-impressions which the specific conditions of the life of the animal possessing them call forth. In this supposition, goblet-shaped formations found in the skin of fishes have indeed been counted a sixth sense; invariably found on animals living in the water, they may transmit impressions which change with the flow of water or its chemical condition. — *Wundt*.

The impressions of higher organisms are caused by a differentiation of originally similar sensory sensations. The functions of the sense of feeling, the touch, temperature, and general sensations, appear here as the common source of development. The general organ of touch is perfected by the development of special touch apparatus; from it arise specific sensory instruments, perhaps in connection with certain ciliated cells which appear among some lower animals as a special outfit of certain parts of the skin. For the continuation of the smell and taste cells are ciliates which, by virtue of position and condition, are eminently susceptible to certain modes of impression. Other cells of the skin are, by deposits of pigment and cuticular for-

mations, pre-eminently open to the photo-chemical effect of light, and the reception of light-impressions. — *Wundt*.

NOTE 6.

As electricity was present in nature from the beginning, but only came to be recognized in its entire breadth by man since the end of the last century, it might prove the same with as yet undiscovered powers of nature.

If now, however, those who practise spiritualism and hypnotism or animal magnetism raised the opinion that here was such a new, natural power which was somewhat related to magnetism, investigation has, concerning the former, made it very probable; and concerning the latter, positively certain that the legerdemain tricks of spiritualism, as well as the seemingly miraculous facts of hypnotism, can be explained by the already discovered natural laws, and that those travelling artists, who practise these so-called sciences, have not discovered or made known a new natural power.

When Prof. Ulrici, in Halle, in 1879, published his essay, "So-called Spiritualism a Scientific Question," in which he, basing the phenomena of spiritualism, not upon a new power of nature, but upon spirits and the souls of the departed, drew great arguments from it for the belief in the immortality of the soul, W. Wundt published "Spiritualism a So-called Scientific Question," in which he shows with masterly skill that Ulrici is indeed right when he, like all who have studied this subject, claims that the spirit-apparitions do not point to a new power in nature, but without doubt to voluntary actions of intelligent beings; but that the claim of an interference on the part of departed spirits annuls the laws of nature, and injures the prevailing causality by the introduction of an occasional and lawlessly acting supernatural cause; while on the other hand it leads to unworthy and actually materialistic conceptions with regard to these spirits.

Animal magnetism appeared when, at the end of the last century, the discovery of magnetism set all minds in motion. Mesmer performed his magical animal-magnetic cures under many intentional and unintentional illusions ; and the literature about somnambulism and animal magnetism became very voluminous, while many experiments were made concerning it by scientific men. These proved that this was not at all a new natural power, which certain persons controlled, but that every man could by practise gain the power of producing the hypnotic condition by even and uniform impressions on the senses (which also call forth the usual condition of sleep) ; that, furthermore, this hypnotic condition is, so to speak, an artificial somnambulism, and consists of a partial interception of consciousness, and still more of the will.

NOTE 7.

If, in the explosive dissolution, we say there is a disposition towards dissolution in the atomic union, we do not mean thereby to explain the phenomenon, but only to intimate in a short way the connection between the grouping of the atoms in the union and the explosive dissolution caused by slight external causes.

NOTE 8.

We know from later investigations in Physics, that ether-vibrations in the form of light-waves reverberate for a longer or shorter time in phosphorescent bodies, and can outlast the creating agency. Still more positive were the results obtained by Niepce de Saint Victor in his investigations concerning the dynamic properties of light ; he could show that light-vibrations may be collected, so to say, on a piece of paper, and retained as silent vibrations for more or less time, to break forth again under the influence of an awakening agency. Copper plates *were first* exposed to the sun, then kept in the dark, and

several months after their insulation it was still possible by special functionary agents to call forth traces of the continued photographic influence of the sun on the surface of the copper plates.

NOTE 9.

Agglutination is especially perceptible in the study of language ; in the word-combinations, *rail-road*, *servant-man*, *lead-pencil*, we find the process exemplified. In earlier stages of development, language showed even more such agglutinations. Science even calls an entire class of languages of the present time agglutinative languages ; these include most of the Asiatic and Polynesian dialects. Some of these dialects, however, no longer show the pure agglutination.

Our present language offers some examples of the blending process in the formation of words.

In the development of language, most of the agglutinative combinations gradually change to blended unions, as the elements are more closely knit together, and thereby lose their independence.

NOTE 10.

In the development of language it is best shown in the Romance languages in contrast to the blending and condensation of the Latin : Latin *amavi*, French *j'ai aimé*.

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